



# **Exploring Indiana's Local Resolution Hydrography Data**

**IGIC Webinar**

**September 20, 2016**

# Exploring Indiana's Local Resolution NHD Data

- What and why?
- Viewing Data Online
- Download Data

# National Hydrography Dataset

Feature-based database of nation's surface water drainage system, part of the National Map



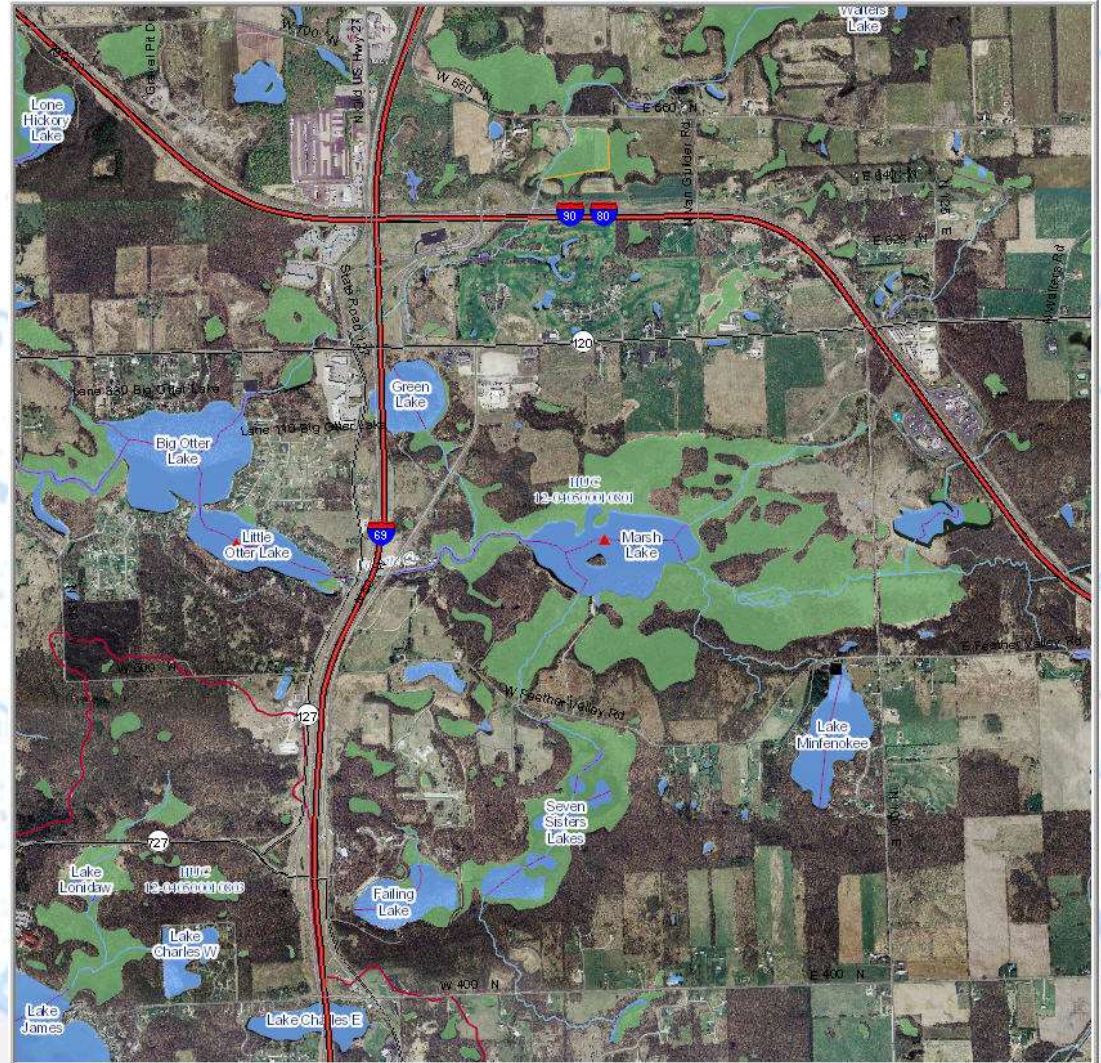
Adopted as Indiana Framework Dataset for Waters



# National Hydrography Dataset

## National Hydrograph Dataset

- Can be used in GIS for general mapping and analysis of surface-water systems
- Can be used in CAD as planimetric basemap data
- Key feature classes:
  - ✦ Flowlines
  - ✦ Area
  - ✦ Water bodies
- FType and FCode for symbolization, analysis

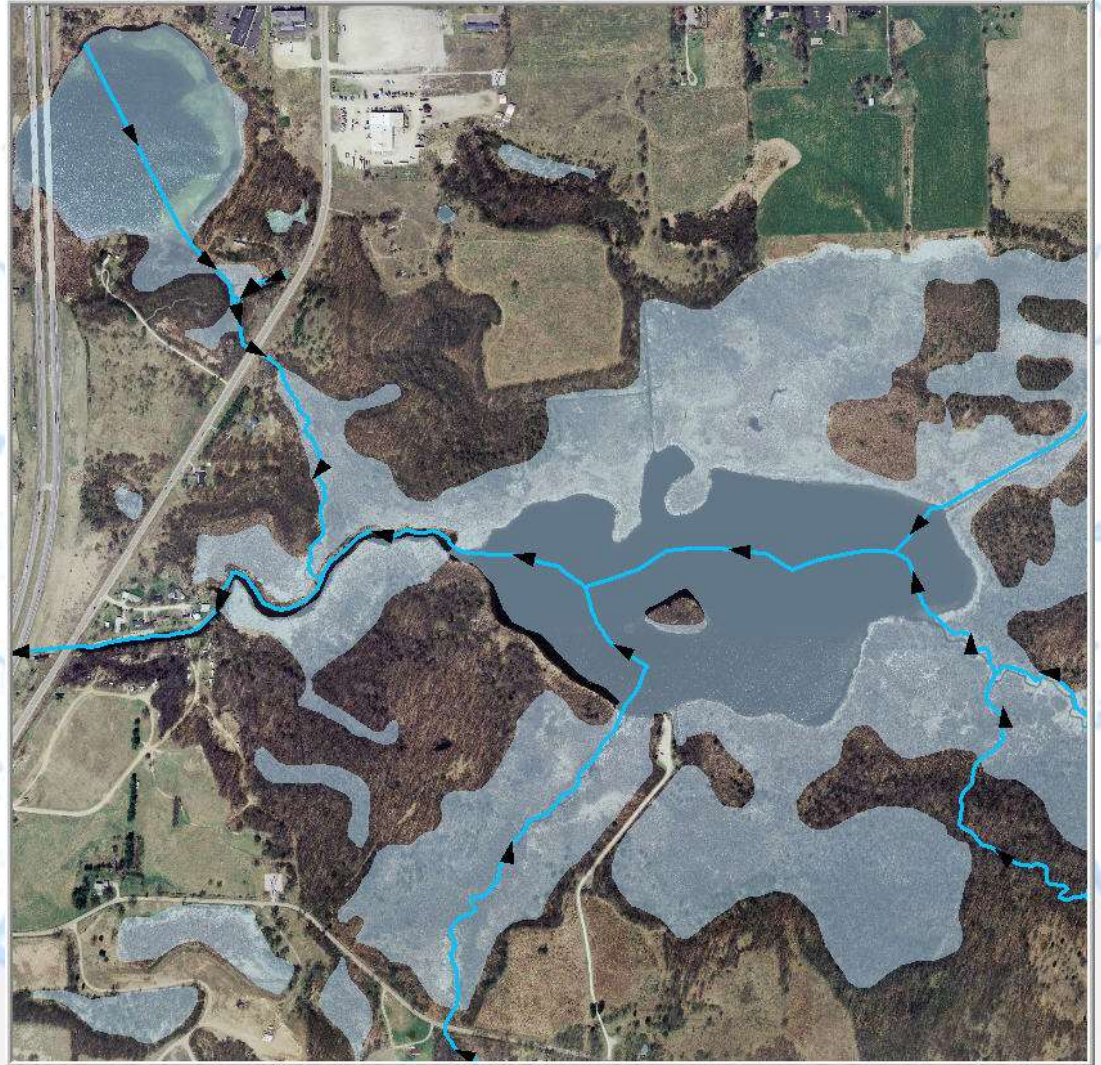




# National Hydrography Dataset

## National Hydrograph Dataset

- Hydrology network in full geodatabase enables the modeling of water flow in GIS applications

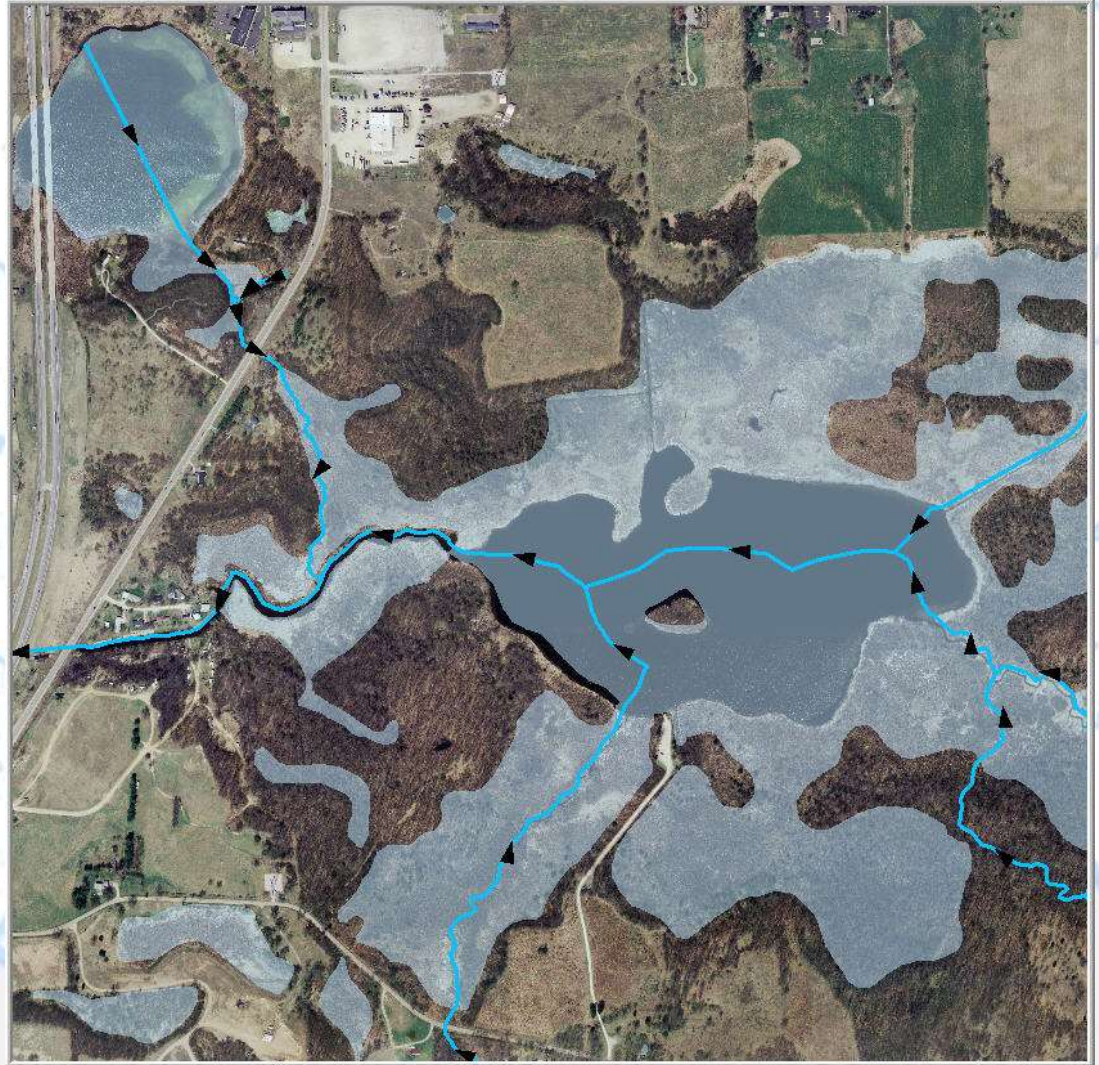




# National Hydrography Dataset

## National Hydrograph Dataset




- Modeling with ArcMap Utility Network Analyst
  - ✦ Show Flow Direction
  - ✦ Determine common ancestors
  - ✦ Find connected or disconnected flowlines
  - ✦ Find path
  - ✦ Trace downstream or upstream
  - ✦ Find upstream accumulation





# National Hydrography Dataset

## User Guide




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Hydrography

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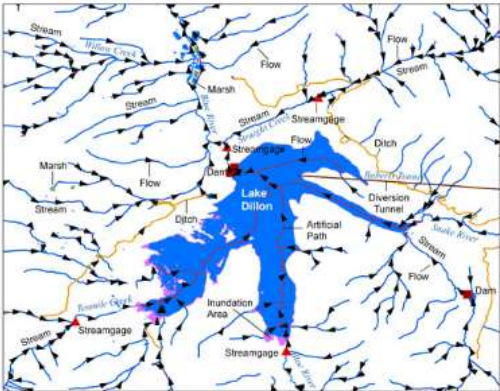
[Home](#) > [NHD User Guide](#)

 NHD User Guide

## NHD User Guide

### About the NHD

The National Hydrography Dataset (NHD) is the surface water component of *The National Map*. The NHD is a digital vector dataset used by geographic information systems (GIS). It contains features such as lakes, ponds, streams, rivers, canals, dams and streamgages. These data are designed to be used in general mapping and in the analysis of surface-water systems.



### About the NHD User Guide

The NHD User Guide contains Interactive Tutorials and a Feature Catalog to guide users every step of the way when using NHD Data.

User Guide Content coming soon:

- Video Demos
- More Tutorials
- Tutorial Module Quizzes
- Increased Feature Catalog Content
- And Much Much More!

<http://nhd.usgs.gov/userguide.html>

# Improving the NHD for Indiana

## Update NHD from High-resolution to “Local-resolution”

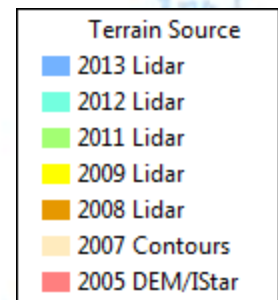
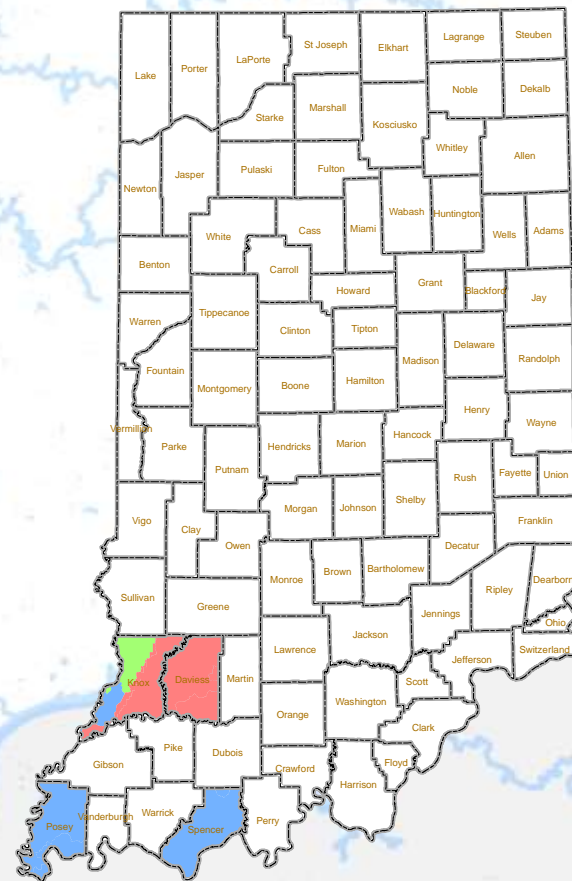
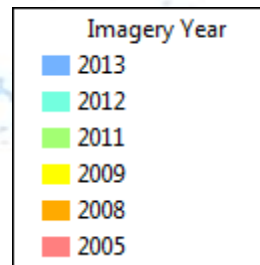
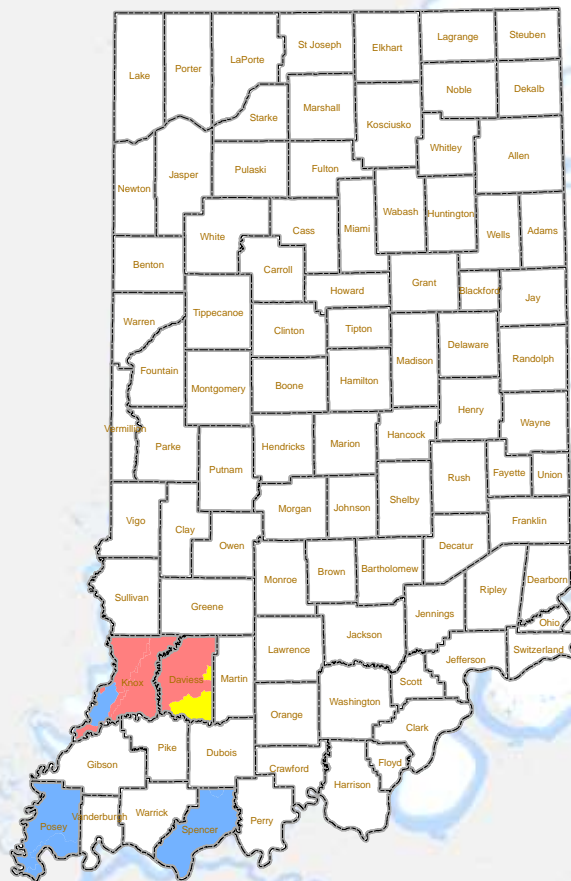
- Based upon best available digital orthophotography and elevation data ( $\geq 2005$ , most 2011-13) instead of old 24K Quad topographic maps
- Updates of physical features (existence, location)
- Data at scale of 1:2,400 or better vs. 1:24,000
- Flowlines added to 6-acre drainage basin area
- Inconsistencies between quads removed
- Naming of features improved—still much to be done
- Network topology improved



# Improving the NHD for Indiana

## Update NHD to “Local-resolution”

- Based upon best available digital orthophotography and elevation data ( $\geq 2005$ , most 2011-13)



## Current Status



Indiana Department of Natural Resources



## Flowlines in the NHD

- NHDFlowlines are the routes that make up a linear surface water drainage network which includes flow direction. As a result, the data can be used for network analysis and modeling.
- Attributes include FType (3-digit) and FCode (5-digit). FCodes are subsets of the FType.
- In the current NHD model, the FTypes must be one of the following:
  - ✦ Artificial Path
  - ✦ CanalDitch
  - ✦ Coastline
  - ✦ Connector
  - ✦ Pipeline
  - ✦ StreamRiver
  - ✦ Underground Conduit

# NHD Feature Catalog for Flowlines

## FType 558 = Artificial Path

A surrogate for general flow direction in NHDWaterbodies and NHDAreas. Artificial Paths carry the name of the flowline feature.

NHDArea StreamRivers will have an Artificial Path that will carry the name of the River.

## FCodes

55800 = no further attributes

example: Flowlines through waterbodies, 2d rivers



# NHD Feature Catalog for Flowlines

## FType 336 = CanalDitch

An artificial open waterway constructed to transport water, to irrigate or drain land, to connect two or more bodies of water, or to serve as a waterway for watercraft. CanalDitch also exists as an NHDArea. May be a named feature.

## FCodes for CanalDitch

33600 = no further attributes

33601 = aqueduct

33603 = stormwater

appear to have been altered by man AND does not follow the natural flow of the terrain

# NHD Feature Catalog for Flowlines

## FType 566 = Coastline

A line of contact between the open sea and the land, including imaginary lines separating inland water bodies from the open sea. The NHD acquires coastline data from the National Ocean and Atmospheric Agency (NOAA) and it is not a product of the USGS. Coastline in the NHD is a representation of the Mean High Water (MHW) as calculated by NOAA and may not match orthoimagery. Coastline in the NHD could be altered but must have an accompanying metadata record that identifies the scientific method used to to calibrate the coastline to a known vertical datum. Coastline may be a named feature.

## FCodes for Coastline

56600 = no further attributes



# NHD Feature Catalog for Flowlines

## FType 334 = Connector

A known, but nonspecific, invisible connection between two nonadjacent network segments. May be a named feature.

## FCodes for Connector

33400 = no further attributes

Flow is indeterminate.

Examples: Under paved roads > 2 lanes, under parking lots

# NHD Feature Catalog for Flowlines

## FType 428 = Pipeline

A closed conduit, with pumps, valves and control devices, for conveying fluids, gases, or finely divided solids. Not a named feature.

Known stormwater: 42823

Unknown: 42803

## FCodes for Pipeline

42800	feature type only: no attributes
42801	Product - water; Pipeline Type - <a href="#">aqueduct</a> ; Relationship to Surface - at or near
42802	Product - water; Pipeline Type - aqueduct; Relationship to Surface - elevated
42803	Product - water; Pipeline Type - aqueduct; Relationship to Surface - underground
42804	Product - water; Pipeline Type - aqueduct; Relationship to Surface - underwater
42805	Product - water; Pipeline Type - <a href="#">general case</a> ; Relationship to Surface - at or near
42806	Product - water; Pipeline Type - general case; Relationship to Surface - elevated
42807	Product - water; Pipeline Type - general case; Relationship to Surface - underground
42808	Product - water; Pipeline Type - general case; Relationship to Surface - underwater
42809	Product - water; Pipeline Type - <a href="#">penstock</a> ; Relationship to Surface - at or near
42810	Product - water; Pipeline Type - penstock; Relationship to Surface - elevated
42811	Product - water; Pipeline Type - penstock; Relationship to Surface - underground
42812	Product - water; Pipeline Type - penstock; Relationship to Surface - underwater
42813	Product - water; Pipeline Type - <a href="#">siphon</a> ; Relationship to Surface - unspecified
42814	Product - water; Pipeline Type - general case
42815	Product - water; Pipeline Type - penstock
42816	Product - water; Pipeline Type - aqueduct
42820	Product - water; Pipeline Type - <a href="#">Stormwater</a>
42821	Product - water; Pipeline Type - Stormwater; Relationship to Surface - At or Near
42822	Product - water; Pipeline Type - Stormwater; Relationship to Surface - Elevated
42823	Product - water; Pipeline Type - Stormwater; Relationship to Surface - Underground
42824	Product - water; Pipeline Type - Stormwater; Relationship to Surface - Underwater



# NHD Feature Catalog for Flowlines

## FType 460 = StreamRiver

A body of flowing water.

StreamRiver also exists as an NHDArea. May be a named feature.

## FCodes for StreamRiver

46000 = no further attributes

46003 = intermittent

46006 = perennial

46007 = ephemeral

follow the natural flow of the terrain

# NHD Feature Catalog for Flowlines

## FType 420 = Underground Conduit

A set of naturally occurring subsurface drainage channels formed from the dissolution of soluble rocks in Karst terrain or in terrain similar to karst but formed in nonsoluble rocks, as by melting of permafrost or ground ice, collapse after mining, and by outflow of liquid lava from beneath its solidified crust. Not a named feature.

## FCodes for Underground Conduit

42000 = no further attributes

42001 = definite positional accuracy

42002 = indefinite positional accuracy

42003 = approximate positional accuracy

Karst with dyelines: 42003

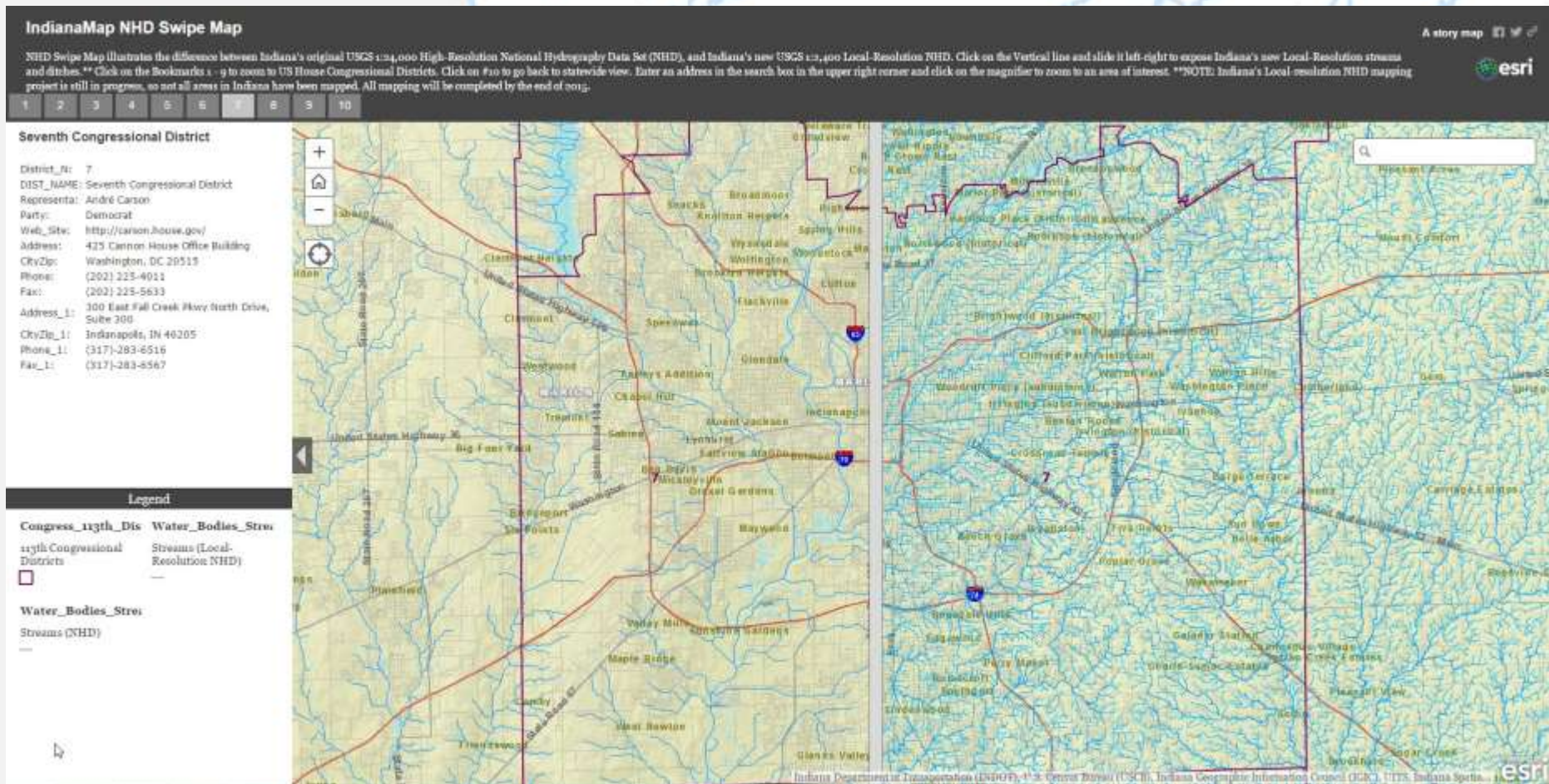
Karst w/out dyelines: 42002



# New Flowlines in the Local Resolution Data

- Because of the 6-acre threshold requirement, there are *many* flowlines extending beyond physical streams.
- Unless otherwise known, they have been added with FType of 460 (StreamRiver) and FCode of 46000 (no further attributes).
- Indiana USGS Liaison Dave Nail has requested that USGS adding an additional FCode of *inferred drainage* be added to the 460 FCodes, which could then be a placeholder for the new features until determined otherwise.

# Compare High Res vs. Local Res

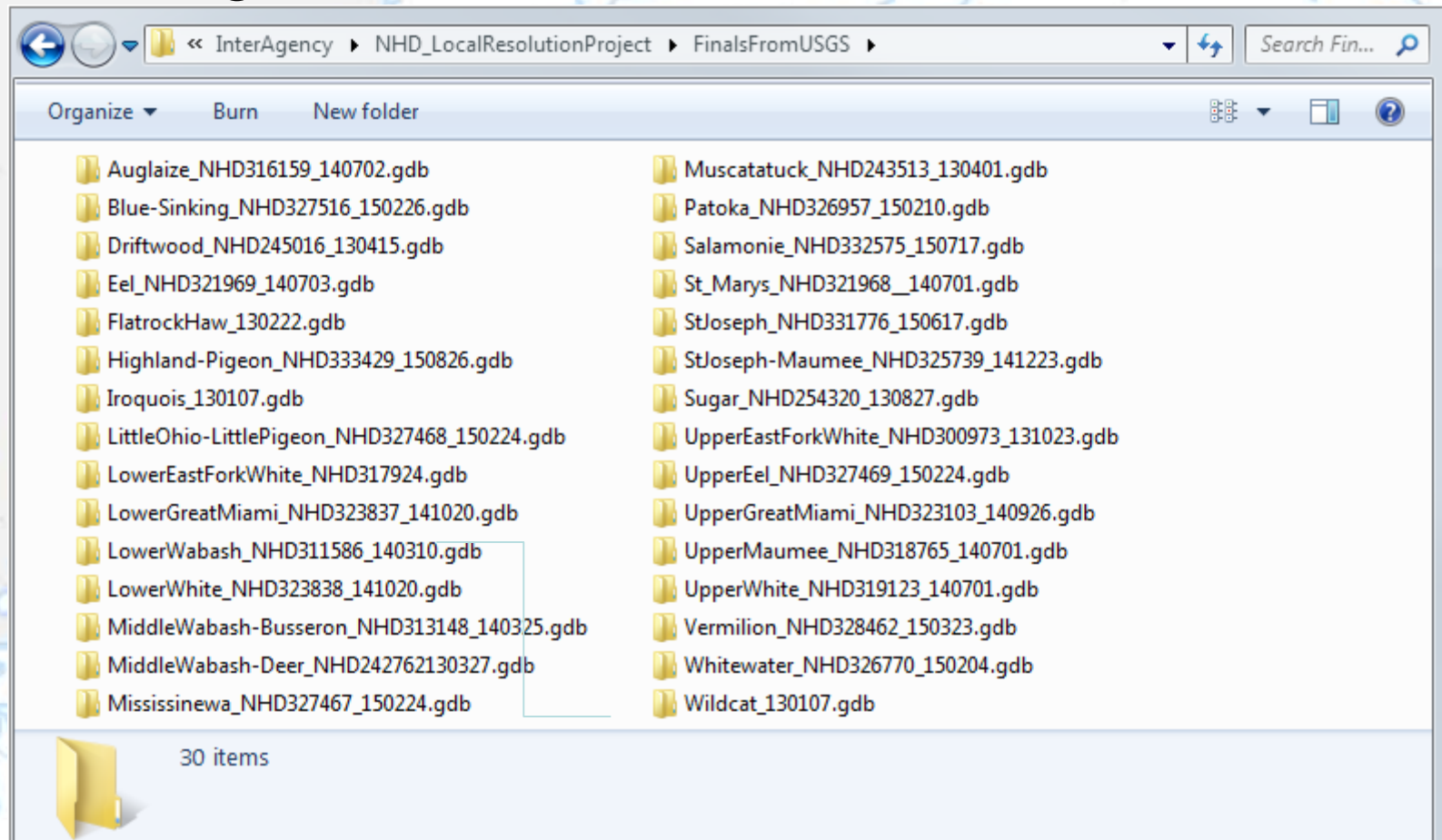


<http://arcg.is/1HHmzQa>



# State Personnel on the State Backbone Network

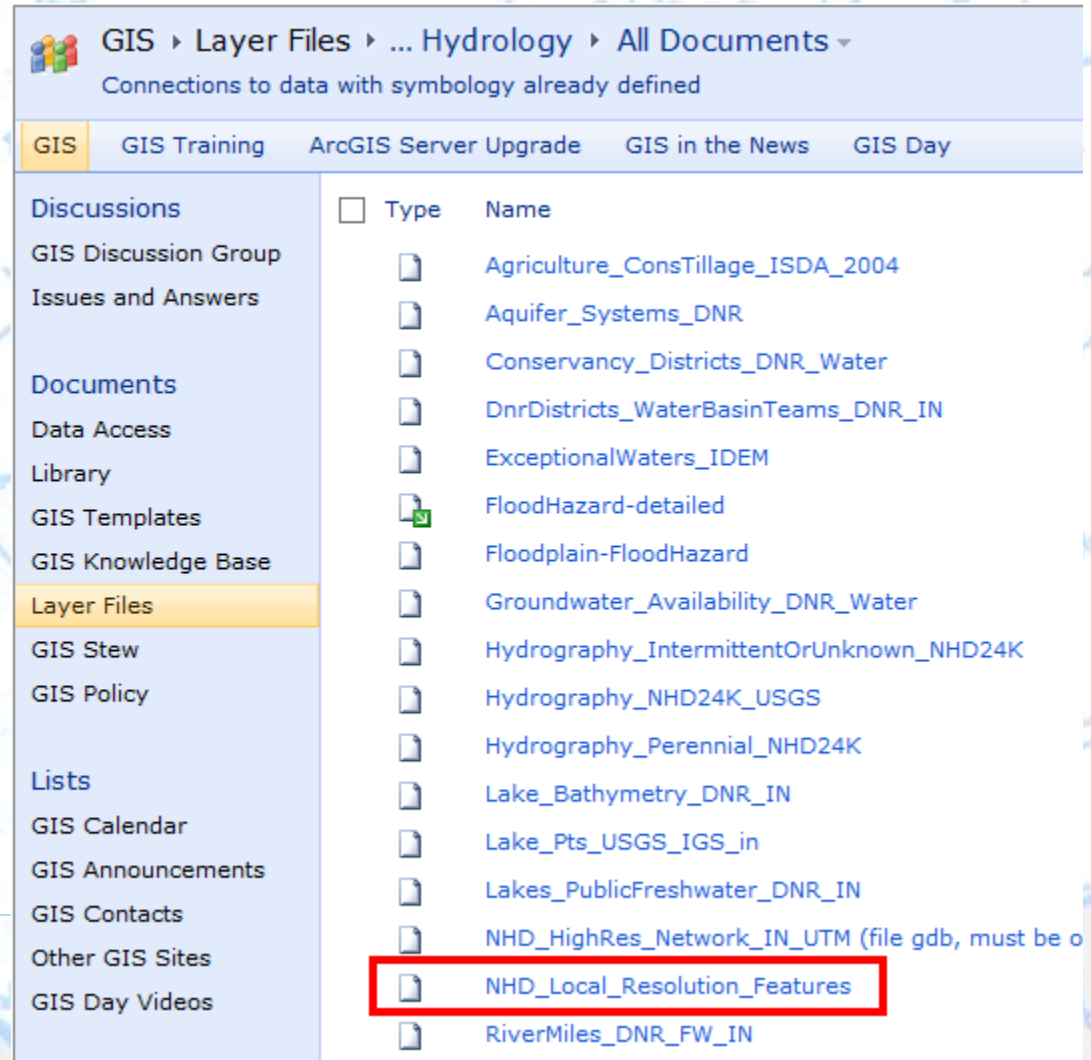
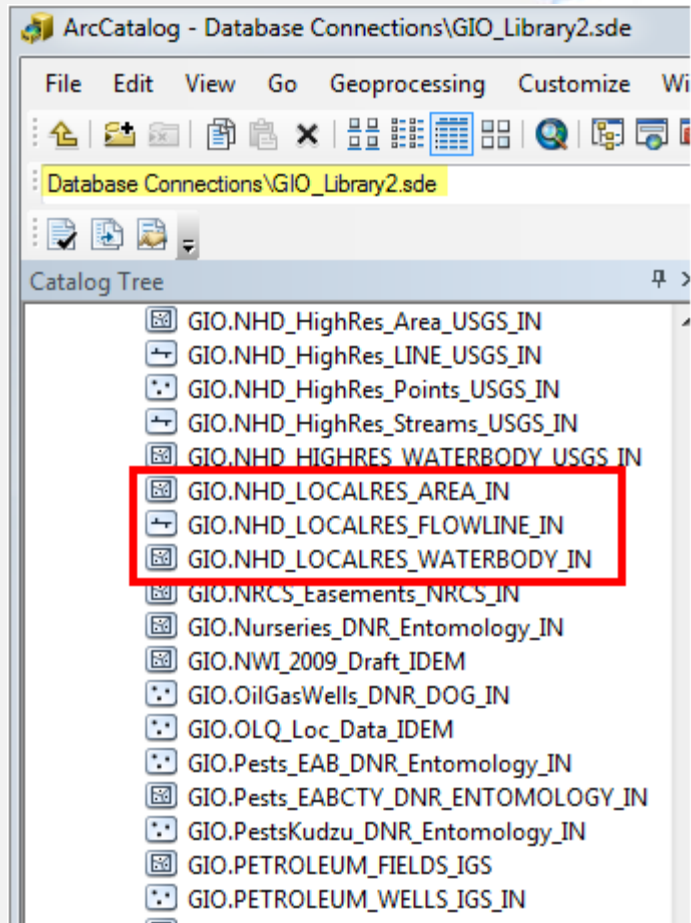
Full Geodatabases by Subbasin, can use for modeling



\\dnrgis\$\InterAgency\NHD\_LocalResolutionProject\FinalsFromUSGS

# State Personnel on the State Backbone Network

## Areas, Flowlines, and Waterbodies, Features Only



Myshare.in.gov/gis > Direct Connect Layer Files > Hydrology



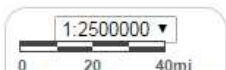
# Viewing Indiana's NHD Data on the Web



IndianaMap: Open NHD Thematic map



<http://maps.indiana.edu>



# Viewing Indiana's NHD Data on the Web



## Thematic Map Gallery

IndianaMap is the public source for Indiana map data. The Thematic Map Gallery helps people find commonly used maps for a better understanding of Indiana issues.

### House Districts (118th Gen. Assembly)



Shows the legislative boundaries for the 118th General Assembly of Indiana.

The boundaries were redistricted and adopted in 2011 (current until 2021), and were provided by personnel of the Indiana Election

District Number:  Select ▼

## IndianaMap: Open NHD Thematic map



The boundaries were redistricted and adopted in 2011 (current until 2021), and were provided by personnel of the Indiana Election

District Number:  Select ▼

<http://maps.indiana.edu/MapGallery.html>

### Congressional Districts (113th Congress)



Shows the legislative district boundaries in Indiana for the 113th U.S. Congress.

The boundaries were redistricted and adopted in 2011 (current until 2021), and were provided by personnel of the Indiana Election

District Number:  Select ▼

### Data Sharing Initiative Layers



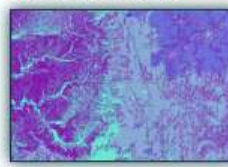
Shows the IndianaMap Data Sharing Initiative (DSI) layers provided by the Indiana Department of Homeland Security (Data were last harvested on December 17, 2015). These data overlay an IndianaMap "Dark Color Hillshaded Relief" Base Map and "Best Available Imagery" for Indiana (set with transparency).

### National Hydrography Data (NHD) (1:2400)



Provides access to the local-resolution version of the National Hydrography Dataset (NHD) for Indiana, showing the currently available data as of September 21, 2015. The map contains rivers, streams, and lakes mapped at a scale of 1:2400 along with the 2009 HUC08 watershed boundary layer for reference. This dataset is

### Wind Speed and Elevation Contours



Provides access to wind resource of Indiana and finding suitable sites for wind energy projects. Conventional field techniques of wind resource assessment can be time consuming, however, and often depend heavily on local meteorological expertise as well as the availability of reliable and representative wind measurements.



# Viewing Indiana's NHD Data on the Web

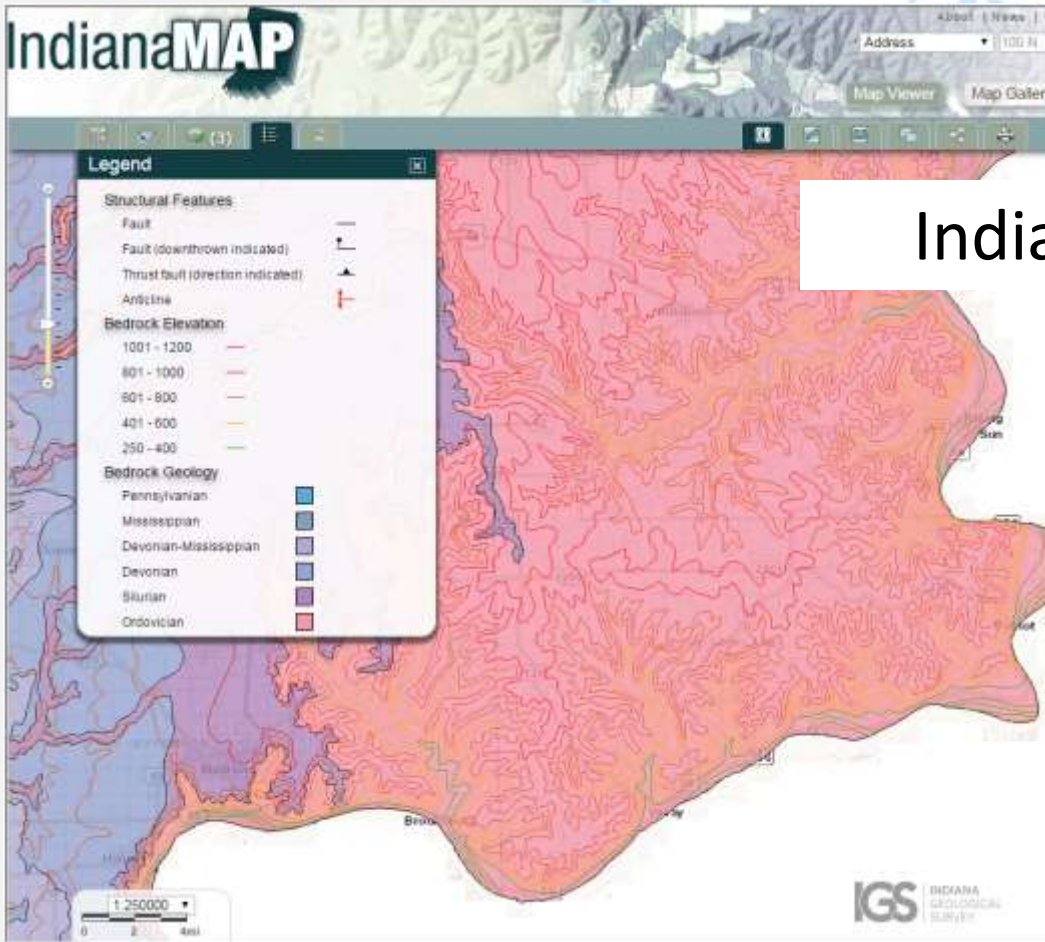


IndianaMap: Open NHD Thematic map

\* Changes coming



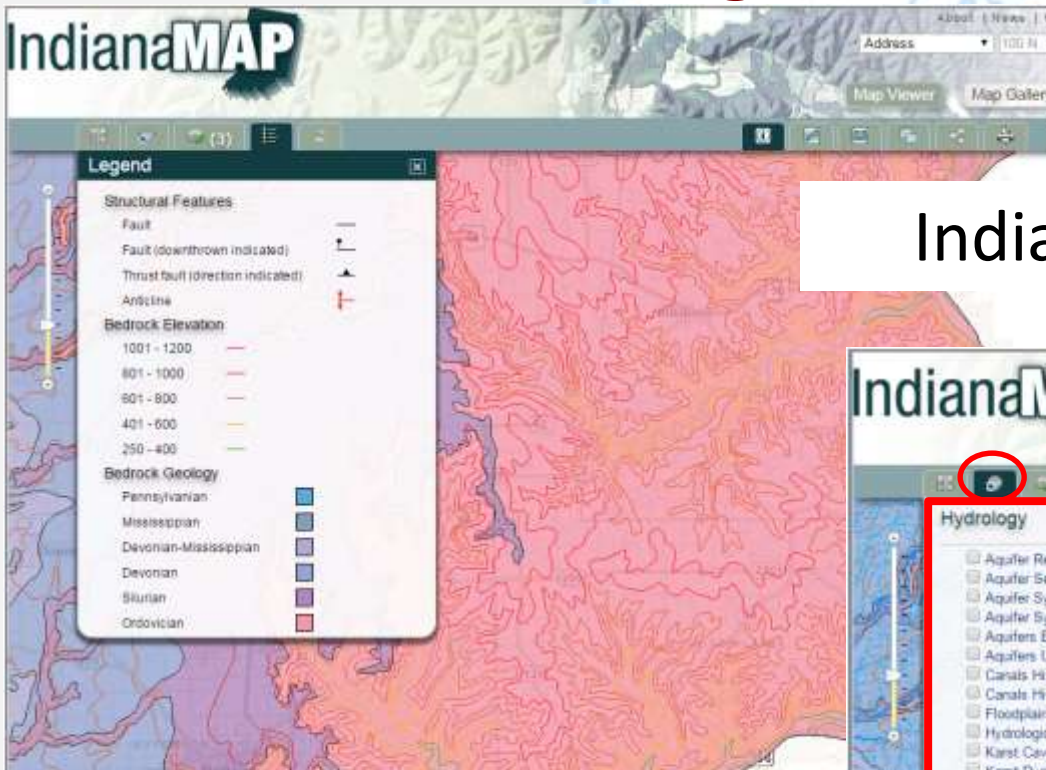
# Viewing Indiana's NHD Data on the Web



IndianaMap: add layers to map



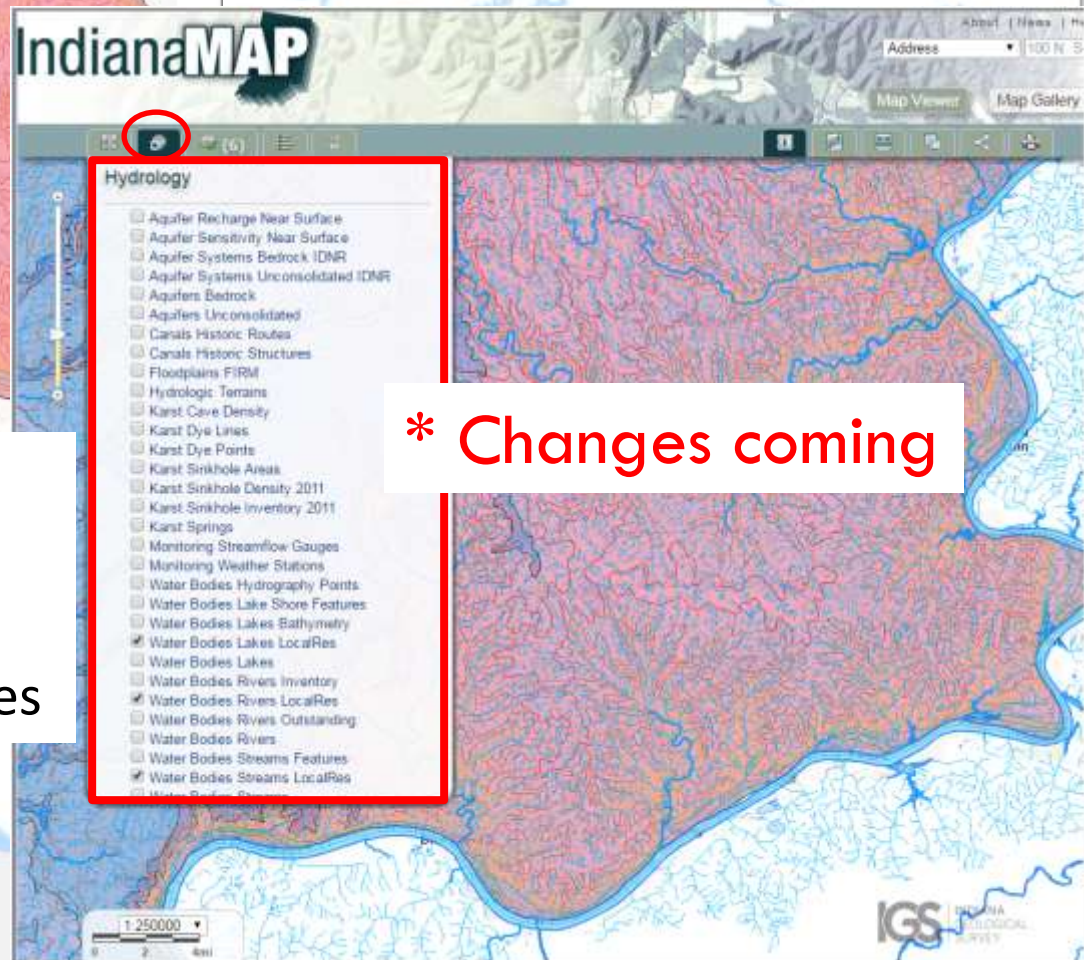
# Viewing Indiana's NHD Data on the Web



IndianaMap: add layers to map

## Hydrology

- Water Bodies Lakes LocalRes
- Water Bodies RiversLocalRes
- Water Bodies Streams LocalRes



\* Changes coming

# Viewing Indiana's NHD Data on the Web

The screenshot displays the ArcGIS Online web interface. At the top, the 'ArcGIS' logo is on the left, and 'My Map' is in the center. On the right, a red box highlights the 'Modify Map' button, with a 'Sign In' button next to it. Below the top bar, there are tabs for 'Details' and 'Basemap', and buttons for 'Print' and 'Measure'. A search bar with the placeholder text 'Find address or place' is also present. The main map area shows a view of Indiana and surrounding states (Illinois, Michigan, Ohio). Major cities like Chicago, Detroit, and Indianapolis are labeled. The map includes a sidebar on the left with 'About this Map' information, a 'SIGN IN' button, and a 'TRY ARCGIS' button. The bottom of the interface shows a scale bar (0 to 60 miles) and the Esri logo.

ArcGIS Online:

<http://www.arcgis.com/home/webmap/viewer.html>





# Viewing Indiana's NHD Data on the Web

The screenshot shows the ArcGIS Online web application. At the top, there's a navigation bar with 'ArcGIS' and 'My Map'. Below it, a toolbar contains icons for 'Details', 'Add', 'Basemap', 'Save', 'Print', 'Measure', and 'Bookmarks'. A search bar on the right says 'Find address or place'. On the left, a 'Search for Layers' panel is open, showing a list of 13 results. The first result, 'Best\_Available\_Imagery' by hillric, is selected. A red box highlights the 'Find' field containing 'indianamap basemap' and the 'GO' button. Below the list, a 'Summary' box for 'Streets' is open, showing a thumbnail map of Indiana. A red box highlights the 'Use as basemap' button in this summary box. The main map area shows a view of Indiana and surrounding regions, including Chicago, Detroit, and Indianapolis. At the bottom, there's a scale bar and a 'DONE ADDING LAYERS' button.

ArcGIS My Map New Map Sign In

Details Add Basemap Save Print Measure Bookmarks Find address or place

Search for Layers

Find: indianamap basemap GO

In: ArcGIS Online

☒ Within map area

13 Results Found

Best\_Available\_Imagery by hillric Add

Streets by pwworall IndianaMap

Streets

Streets\_Road by hillric

Best\_Available\_Imagery by hillric

NAIP\_2010 by hillric

Imagery\_2007 by hillric

Railroads\_Active\_INDOT by hillric

Streets by hillric Add

Railroads\_Active\_INDOT by hillric Add

NAIP\_2007 by hillric Add

PLSS\_Surveyor\_Tie\_Cards by hillric Add

NAIP\_2008 by hillric Add

Railroads\_Rail\_Crossings\_INDOT by hillric Add

DONE ADDING LAYERS

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Summary:

Streets Basemap, (2011) - A scale-dependent basemap that combines the digital elevation model with selected transportation and other layers

Add to map

Item Details

Use as basemap

1. Search for and select from *indianamap basemap*

2. Choose *use as basemap*

# Viewing Indiana's NHD Data on the Web



## ArcGIS Online Map with UTM basemap

\* Changes coming

Search for *indianamap localres* and add

1. Water\_Bodies\_Lakes\_LocalRes by hillrc
2. Water\_Bodies\_Rivers\_LocalRes by hillrc
3. Water\_Bodies\_Streams\_LocalRes by hillrc

DONE ADDING LAYERS



# Viewing Indiana's NHD Data on the Web

ArcGIS My Map

New Map ▾ Modify Map Sign In

Details Add ▾ Basemap Save ▾ Print Measure Bookmarks Find address or place 🔍

Contents

- ▶ ☒ Water Bodies Lakes LocalRes
- ▶ ☒ Water Bodies Rivers LocalRes
- ▶ ☒ Water Bodies Streams LocalRes
- ▶ ☐ Streets

ArcGIS Online Map with UTM basemap

\* Changes coming

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Indiana Department of Transportation (INDOT) U.S. Census Bureau

POWERED BY esri

Indiana Department of Natural Resources

# Viewing Indiana's NHD Data on the Web

## ArcGIS Online Map with non-UTM basemap

### Add Layer from Web

[http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water\\_Bodies\\_Lakes\\_LocalRes/MapServer/0](http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water_Bodies_Lakes_LocalRes/MapServer/0)

[http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water\\_Bodies\\_Rivers\\_LocalRes/MapServer/0](http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water_Bodies_Rivers_LocalRes/MapServer/0)

[http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water\\_Bodies\\_Streams\\_LocalRes/MapServer/0](http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water_Bodies_Streams_LocalRes/MapServer/0)

### Add Layer from Web

What type of data are you referencing?

An ArcGIS Server Web Service

URL: [http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water\\_Bodies\\_Rivers\\_LocalRes/](http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water_Bodies_Rivers_LocalRes/)

☐ Use as Basemap

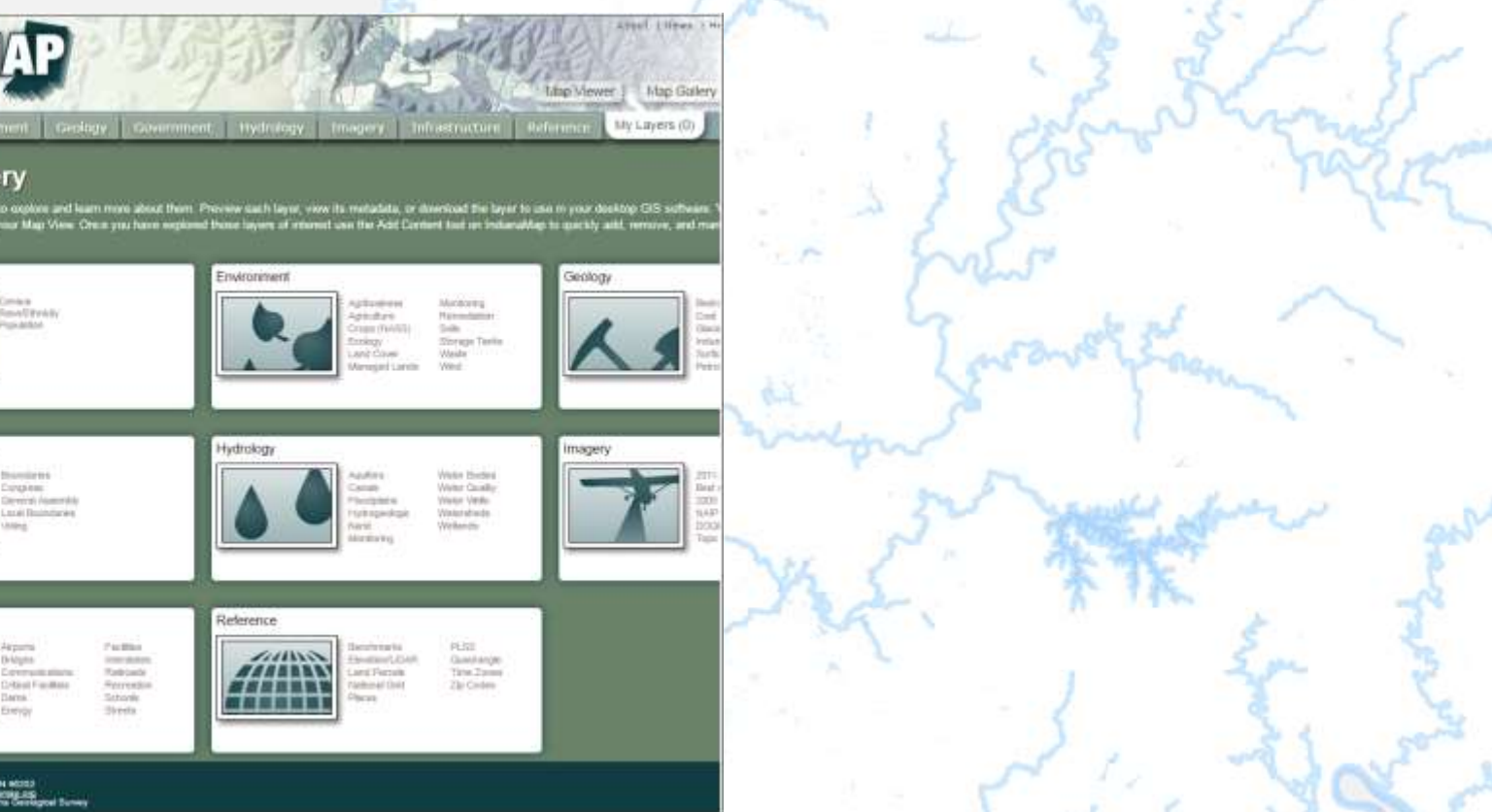
ADD LAYER

CANCEL

\* Changes coming



# Viewing Indiana's NHD Data on the Web



**IndianaMAP**

Map Viewer | Map Gallery

Demographics | Environment | Geology | Government | Hydrology | Imagery | Infrastructure | Reference | My Layers (0)

### Layer Gallery

Browse IndianaMap layers to explore and learn more about them. Preview each layer, view its metadata, or download the layer to use in your desktop GIS software. You can also choose to add the layer to your Map View. Once you have explored these layers of interest use the Add Content tool on IndianaMap to quickly add, remove, and manage layers.

Category	Layers
<b>Demographics</b>	Census Population Population Density
<b>Environment</b>	Agriculture Crops (NASS) Ecology Land Cover Managed Lands Monitoring Recreation Storage Tanks Waste Wetlands
<b>Geology</b>	Bedrock Coal Glaciers Invasive Soils Turf Petro
<b>Government</b>	Boundaries Congress General Assembly Local Boundaries Voting
<b>Hydrology</b>	Aquifers Canals Floodplains Hydrography River Monitoring Water Bodies Water Quality Water Vents Watersheds Wetlands
<b>Imagery</b>	2011 Aerial 2001 NAIP 2009 Topo
<b>Infrastructure</b>	Airports Highways Communications Cultural Facilities Dams Energy Facilities Interstates Railroads Recreation Schools Streets
<b>Reference</b>	Boundaries Elevation/Contour Land Parcels National Grid Places PLUS Quadrangle Time Zones ZIP Codes

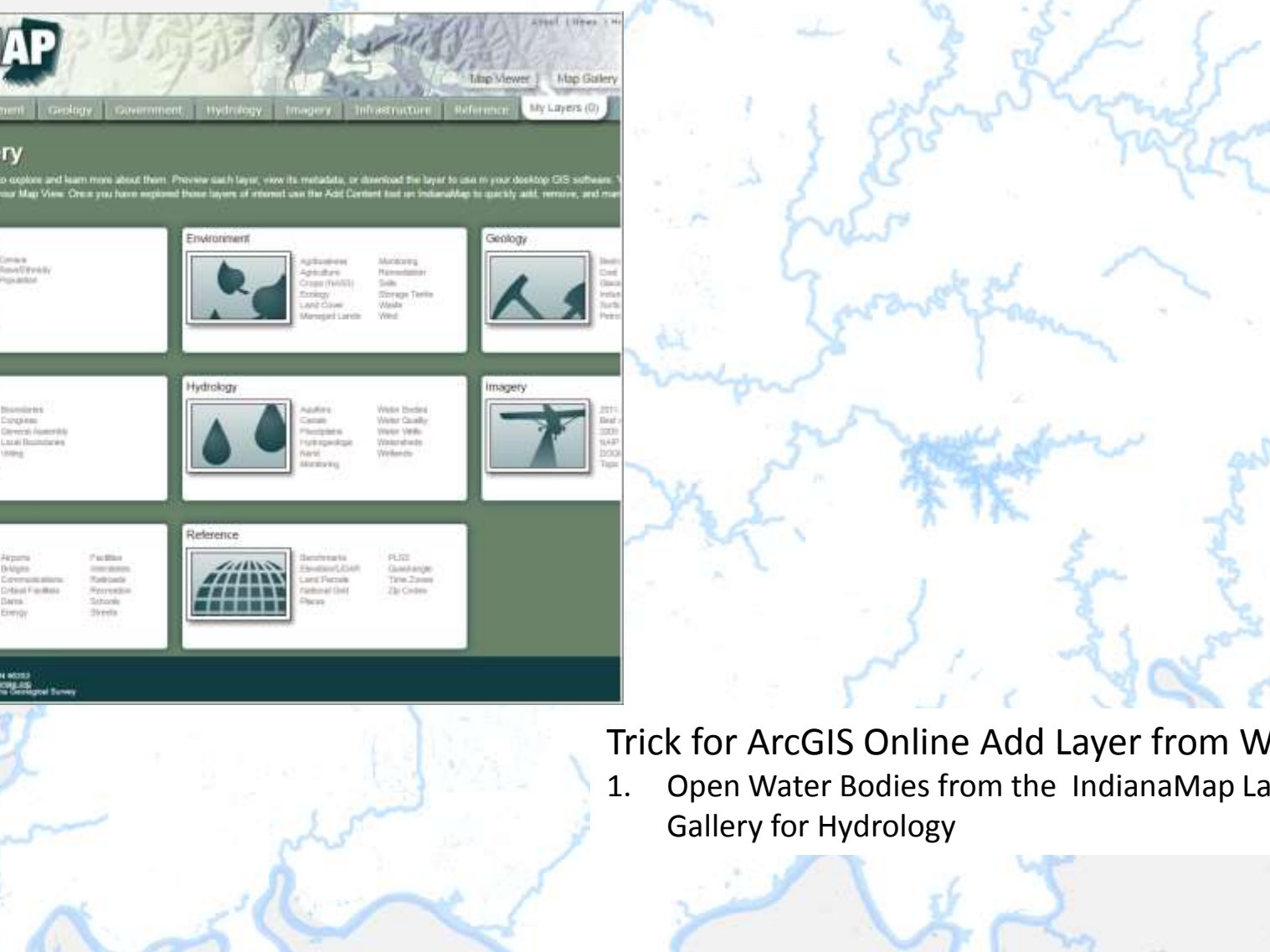
Indiana Geographic Information Council  
177 Indiana Ave., Suite 211, Indianapolis, IN 46202  
Phone: 317.554.4300 | Email: info@indianagis.org  
Designed by Michael Daniels and the Indiana Geological Survey

## Trick for ArcGIS Online Add Layer from Web

1. Open Water Bodies from the IndianaMap Layer Gallery for Hydrology

Indiana Department of Natural Resources

# Viewing Indiana's NHD Data on the Web



**IndianaMAP**

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Category	Layers
Demographics	Census, Race/Ethnicity, Population
Environment	Agriculture, Agriculture, Crops (NASS), Ecology, Land Cover, Managed Lands, Monitoring, Remediation, Solid, Storage Tanks, Waste, Wet
Geology	Bedrock, Coal, Glacial, Inflow, Surface, Tectonics
Government	Boundaries, Congress, General Assembly, Local Boundaries, Voting
Hydrology	Aquifers, Canals, Floodplains, Hydrography, Land Monitoring, Water Bodies, Water Quality, Water Vents, Watersheds, Wetlands
Imagery	2011, Aerial, 2001, 2003, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604

## 1. Open Water Bodies from the IndianaMap Layer Gallery for Hydrology

- ## 1. Open Water Bodies from the IndianaMap Layer Gallery for Hydrology

# Viewing Indiana's NHD Data on the Web

The screenshot shows the IndianaMAP web interface. At the top, there's a navigation bar with tabs for Demographics, Environment, Geology, Government, Hydrology, Imagery, Infrastructure, Reference, and My Layers (3). The main content area is titled 'Hydrology » Water Bodies'. It contains a grid of layer thumbnails and descriptions. The first row includes 'Streams, Ditches, etc. (Local Res. NHD, 20160303)' and 'Lakes, Ponds, etc. (Local Res. NHD, 20160303)'. The 'Streams, Ditches, etc.' layer's 'Map Service' button is highlighted with a red box. Other layers include 'Rivers, Canals, etc. (Local Res. NHD, 20160303)', 'Lake Bathymetry, 2012 (IDNR)', 'Streams, Ditches, etc. (NHD, 2008)', 'Lakes, Ponds, etc. (NHD, 2008)', 'Rivers, Canals, etc. (NHD, 2008)', and 'Hydrography Misc. Point Features (NHD, 2008)'.

**\* Changes coming**

Trick for ArcGIS Online Add Layer from Web

1. Open Water Bodies from the IndianaMap Layer Gallery for Hydrology
2. Find the layer and click Map Service



# Viewing Indiana's NHD Data on the Web

**IndianaMAP**

Map Viewer | Map Gallery

Demographic | Environment | Geology | Government | Hydrology | Imagery | Infrastructure | Reference | **My Layers (3)**

## Hydrology » Water Bodies

**Streams, Ditches, etc. (Local Res. NHD, 20160303)**

Streams, Rivers, Canals, Ditches, Artificial Paths, Coastlines, Connectors, and Pipelines, 20160303 (1:2,400) - Shows streams, rivers, canals, ditches, artificial paths, coastlines, connectors and pipelines in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as of March 3, 2016. NHD data was originally developed at 1:100,000-scale and exists at that scale for the whole country. Also, high-resolution NHD, generally developed at 1:24,000 to 1:12,000 scale, adds detail to the original 1:100,000-scale NHD. The local resolution NHD is developed at 1:2,400 scale, and adds even more detail to the NHD. This dataset is currently incomplete but includes data for the following thirty-one HUC08 subbasins in Indiana: Auglaize (0410007), Blue-Sinking (05140104), Driftwood (05120204), Eel (05120104), Eel (05120203), Flatrock-Haw (05120205), Highland-Pigeon (05140202), Iroquois (07120002), Kankakee (07120001) Lower East Fork White (05120208), Lower Great Miami (05080002), Lower Ohio-Little Pigeon (05140201), Lower Wabash (05120113), Lower White (05120202), Middle Ohio-Laughery (05090203), Mississinewa (05120103), Muscatatuck (05120209), Patoka (05120209), Salamone (05120102), Silver-Little Kentucky (05140101), St. Joseph (04050001), St. Joseph-Maumee (04100003), St. Mary's (04100004), Sugar (05120110), Upper East Fork White (05120206), Upper Great Miami (05080001), Upper Maumee (04100005), Upper White (05120201), Vermilion (05120109), Whitewater (05080003), Wildcat (05120107).

[Web Service](#) [Download](#) [Map Service](#) [Add Layer](#)

**Lakes, Ponds, etc. (Local Res. NHD, 20160303)**

Lakes, Ponds, Reservoirs, Swamps, and Marshes, 20160303 (1:2,400) - Shows lakes, ponds, reservoirs, swamps and marshes in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as of March 3, 2016. NHD data was originally developed at 1:100,000-scale and exists at that scale for the whole country. Also, high-resolution NHD, generally developed at 1:24,000 to 1:12,000 scale, adds detail to the original 1:100,000-scale NHD. The local resolution NHD is developed at 1:2,400 scale, and adds even more detail to the NHD. This dataset is currently incomplete but includes data for the following thirty-one HUC08 subbasins in Indiana: Auglaize (0410007), Blue-Sinking (05140104), Driftwood (05120204), Eel (05120104), Eel (05120203), Flatrock-Haw (05120205), Highland-Pigeon (05140202), Iroquois (07120002), Kankakee (07120001) Lower East Fork White (05120208), Lower Great Miami (05080002), Lower Ohio-Little Pigeon (05140201), Lower Wabash (05120113), Lower White (05120202), Middle Ohio-Laughery (05090203), Mississinewa (05120103), Muscatatuck (05120209), Patoka (05120209), Salamone (05120102), Silver-Little Kentucky (05140101), St. Joseph (04050001), St. Joseph-Maumee (04100003), St. Mary's (04100004), Sugar (05120110), Upper East Fork White (05120206), Upper Great Miami (05080001), Upper Maumee (04100005), Upper White (05120201), Vermilion (05120109), Whitewater (05080003), Wildcat (05120107).

[Web Service](#) [Download](#) [Map Service](#) [Add Layer](#)

**Rivers, Canals, etc. (Local Res. NHD, 20160303)**

Rivers, Canals, Ditches, Artificial Paths, Coastlines, Connectors, and Pipelines, 20160303 (1:2,400) - Shows rivers, canals, ditches, artificial paths, coastlines, connectors and pipelines in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as of March 3, 2016. NHD data was originally developed at 1:100,000-scale and exists at that scale for the whole country. Also, high-resolution NHD, generally developed at 1:24,000 to 1:12,000 scale, adds detail to the original 1:100,000-scale NHD. The local resolution NHD is developed at 1:2,400 scale, and adds even more detail to the NHD. This dataset is currently incomplete but includes data for the following thirty-one HUC08 subbasins in Indiana: Auglaize (0410007), Blue-Sinking (05140104), Driftwood (05120204), Eel (05120104), Eel (05120203), Flatrock-Haw (05120205), Highland-Pigeon (05140202), Iroquois (07120002), Kankakee (07120001) Lower East Fork White (05120208), Lower Great Miami (05080002), Lower Ohio-Little Pigeon (05140201), Lower Wabash (05120113), Lower White (05120202), Middle Ohio-Laughery (05090203), Mississinewa (05120103), Muscatatuck (05120209), Patoka (05120209), Salamone (05120102), Silver-Little Kentucky (05140101), St. Joseph (04050001), St. Joseph-Maumee (04100003), St. Mary's (04100004), Sugar (05120110), Upper East Fork White (05120206), Upper Great Miami (05080001), Upper Maumee (04100005), Upper White (05120201), Vermilion (05120109), Whitewater (05080003), Wildcat (05120107).

[Web Service](#) [Download](#) [Map Service](#) [Add Layer](#)

**Lake Bathymetry, 2012 (IDNR)**

Lake Bathymetry, 2012 (IDNR) - Shows bathymetric contours for 85 lakes in Indiana, including the depths of the water from the shoreline of each lake to the deepest part of the lake. Contour intervals are 2 feet for most lakes, 2 feet for some. Lakes were surveyed using Sonotek.

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[JSON](#) | [JSON](#) | [XML](#) | [XML](#)

### Hydrology/Water\_Bodies\_Streams\_LocalRes (MapServer)

**View In:** [ArcGIS JavaScript](#) [ArcGIS.com Map](#) [Google Earth](#) [ArcMap](#) [ArcGIS Explorer](#)

**View Footprint In:** [ArcGIS.com Map](#)

**Service Description:** Streams, Rivers, Canals, Ditches, Artificial Paths, Coastlines, Connectors, and Pipelines, 20160303 (1:2,400) - Shows streams, rivers, canals, ditches, artificial paths, coastlines, connectors and pipelines in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as of March 3, 2016. NHD data was originally developed at 1:100,000-scale and exists at that scale for the whole country. Also, high-resolution NHD, generally developed at 1:24,000 to 1:12,000 scale, adds detail to the original 1:100,000-scale NHD. The local resolution NHD is developed at 1:2,400 scale, and adds even more detail to the NHD. This dataset is currently incomplete but includes data for the following thirty-one HUC08 subbasins in Indiana: Auglaize (0410007), Blue-Sinking (05140104), Driftwood (05120204), Eel (05120104), Eel (05120203), Flatrock-Haw (05120205), Highland-Pigeon (05140202), Iroquois (07120002), Kankakee (07120001) Lower East Fork White (05120208), Lower Great Miami (05080002), Lower Ohio-Little Pigeon (05140201), Lower Wabash (05120113), Lower White (05120202), Middle Ohio-Laughery (05090203), Mississinewa (05120103), Muscatatuck (05120209), Patoka (05120209), Salamone (05120102), Silver-Little Kentucky (05140101), St. Joseph (04050001), St. Joseph-Maumee (04100003), St. Mary's (04100004), Sugar (05120110), Upper East Fork White (05120206), Upper Great Miami (05080001), Upper Maumee (04100005), Upper White (05120201), Vermilion (05120109), Whitewater (05080003), Wildcat (05120107).

**Map Names Layers**

[Legend](#)

[All Layers and Tables](#)

**Layers:**

- Streams (Local-Resolution NHD) (0)

**Description:**

**Copyright Text:** U.S. Geological Survey

**Spatial Reference:** 26916 (26916)

**Single Tiled Map Caches:** true

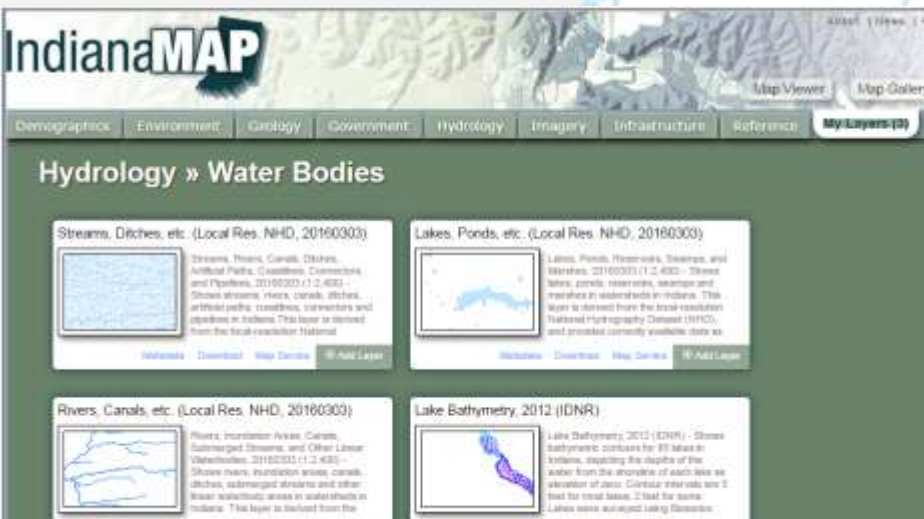
**Tile Info:**

- Height: 512
- Width: 512

## Trick for ArcGIS Online Add Layer from Web

1. Open Water Bodies from the IndianaMap Layer Gallery for Hydrology
2. Find the layer and click Map Service
3. Click on the individual layer's link under Layers

# Viewing Indiana's NHD Data on the Web



## Layer: Streams (Local-Resolution NHD) (ID: 0)

Name: Streams (Local-Resolution NHD)

Display Field: GNIS\_NAME

Type: Feature Layer

Geometry Type: esriGeometryPolyline

**Description:** Streams, Rivers, Canals, Ditches, Artificial Paths, Coastlines, Connectors, and Pipelines, 20160303 (1:2,400) - Shows streams, rivers, canals, ditches, artificial paths, coastlines, connectors and pipelines in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as of March 3, 2016. NHD data was originally developed at 1:24,000 scale and exists at that scale for the whole country. Also, high-resolution NHD is developed at 1:2,400 scale, and adds even more detail to the NHD. This dataset is currently incomplete but includes data for the following thirty-one HUC08 subbasins in Indiana: Auglaize (0410007), Blue-Sinking (05140104), Driftwood (05120204), Eel (05120104), Eel (05120203), Flatrock-Haw (05120205), Highland-Pigeon (05140202), Iroquois (07120002), Kankakee (07120001), Lower East Fork White (05120208), Lower Great Miami (05080002), Lower Ohio-Little Pigeon (05140201), Lower Wabash (05120113), Lower White (05120202), Middle Wabash-Busseron (05120111), Middle Wabash-Deer (05120105), Middle Wabash-Little Vermilion (05120108), Middle Ohio-Laughery (05090203), Mississinewa (05120103), Muscatatuck (05120207), Patoka (05120209), Salamonie (05120102), Silver-Little Kentucky (05140101), St. Joseph (04050001), St. Joseph-Maumee (04100003), St. Mary's (04100004), Sugar (05120110), Upper East Fork White (05120206), Upper Great Miami (05080001), Upper Maumee (04100005), Upper White (05120201), Vermilion (05120109), Whitewater (05080003), Wildcat (05120107).

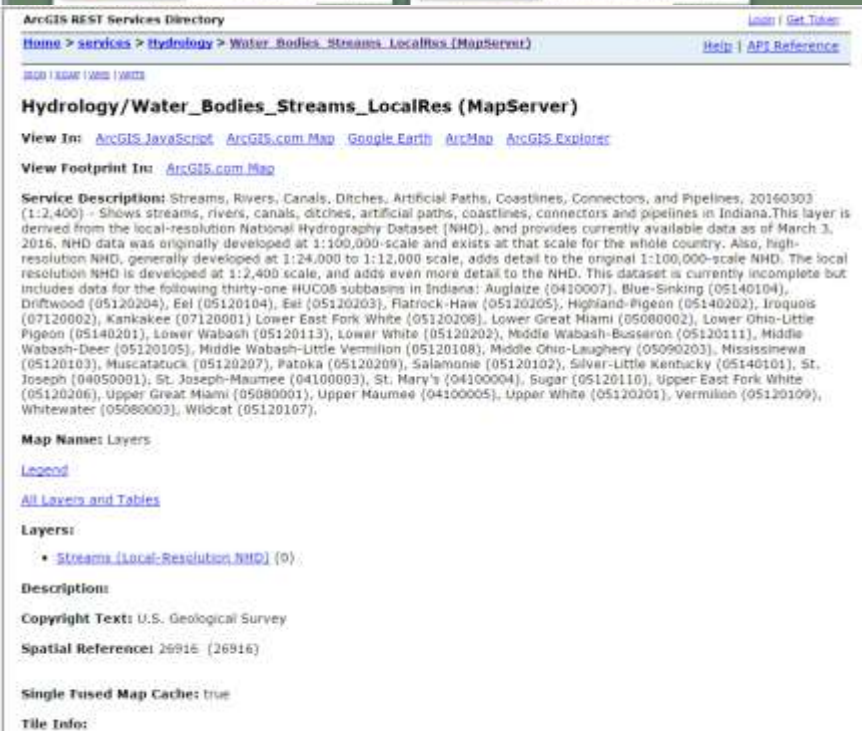
Definition Expression: N/A

Copyright Text: copyright 2015

Default Visibility: true

## Trick for ArcGIS Online Add Layer from Web

1. Open Water Bodies from the IndianaMap Layer Gallery for Hydrology
2. Find the layer and click Map Service
3. Click on the individual layer's link under Layers
4. Copy the full URL





# Viewing Indiana's NHD Data on the Web

ArcGIS ▾ My Map New Map ▾ Modify Map Sign In

Details Add ▾ Basemap Save Print

Search for Layers  
Add Layer from Web  
Add Layer from File  
Add Map Notes

Contents  
Topographic

What type of data are you referencing?  
An ArcGIS Server Web Service ▾

URL: [http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water\\_Bodies\\_Rivers\\_LocalRes/](http://maps.indiana.edu/arcgis/rest/services/Hydrology/Water_Bodies_Rivers_LocalRes/)  
☐ Use as Basemap

ADD LAYER CANCEL

Trick for ArcGIS Online Add Layer from Web

1. Open Water Bodies from the IndianaMap Layer Gallery for Hydrology
2. Find the layer and click Map Service
3. Click on the individual layer's link under Layers
4. Copy the full URL
5. Paste in the Add Layer from Web box

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Indiana Department of Natural Resources

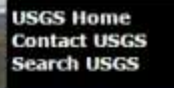


# \*Changes to IndianaMap Local Res Streams Layer

After the final subbasins are completed and available from The National Map, what is now *Current Water Bodies Streams LocalRes* will be replaced with two new layers

- Classified Flowlines: each of the following categories, symbolized by category
  - perennial stream/river
  - intermittent stream/river
  - canal/ditch
  - artificial path
  - connectors
- Unclassified Flowlines: generic stream/river classifications



# Getting Indiana's NHD Data from the Web



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## Get NHD Data

The National Hydrography Dataset (NHD) is stored in a geodatabase implementation of the NHD model. This provides great flexibility and efficiency to allow the data to work well in analysis using a geographic information system (GIS). To maximize the capability of the NHD, users should download the data in a file-based or personal geodatabase known as NHDinGEO. For those using the NHD to create simple maps, a shapefile version known as NHDinSHAPE also is available.


### National Snapshot of NHD

A national snapshot of the entire High Resolution NHD from February 2015 is now available in a file geodatabase. Anyone is welcome to give it a try and give us feedback. It is a large download (10 GB), and we advise using ftp client software, which allows you to resume a transfer in case of a failure. Examples of such software include WinSCP, CyberDuck, and FileZilla. (The use of firm, trade, or brand names is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey. The names mentioned in this document may be trademarks or registered trademarks of their respective trademark owners. Use appropriate caution when downloading and installing software from the Internet.) This file geodatabase includes just the basic NHD feature classes and tables in a slightly modified data model. It is available for download [here](#). Note the USGS does not currently provide a national snapshot such as this on a regular basis. Please provide feedback via email to [ahrea@usgs.gov](mailto:ahrea@usgs.gov) on whether this type of national database would be useful to you, in addition to the current subregion (4-digit HUC), subbasin (8-digit HUC), and state


#### Quick Links for data download:



1. [GO to the NHD Viewer](#) | [Help](#)



2. [GO to Pre-staged Subregions](#)

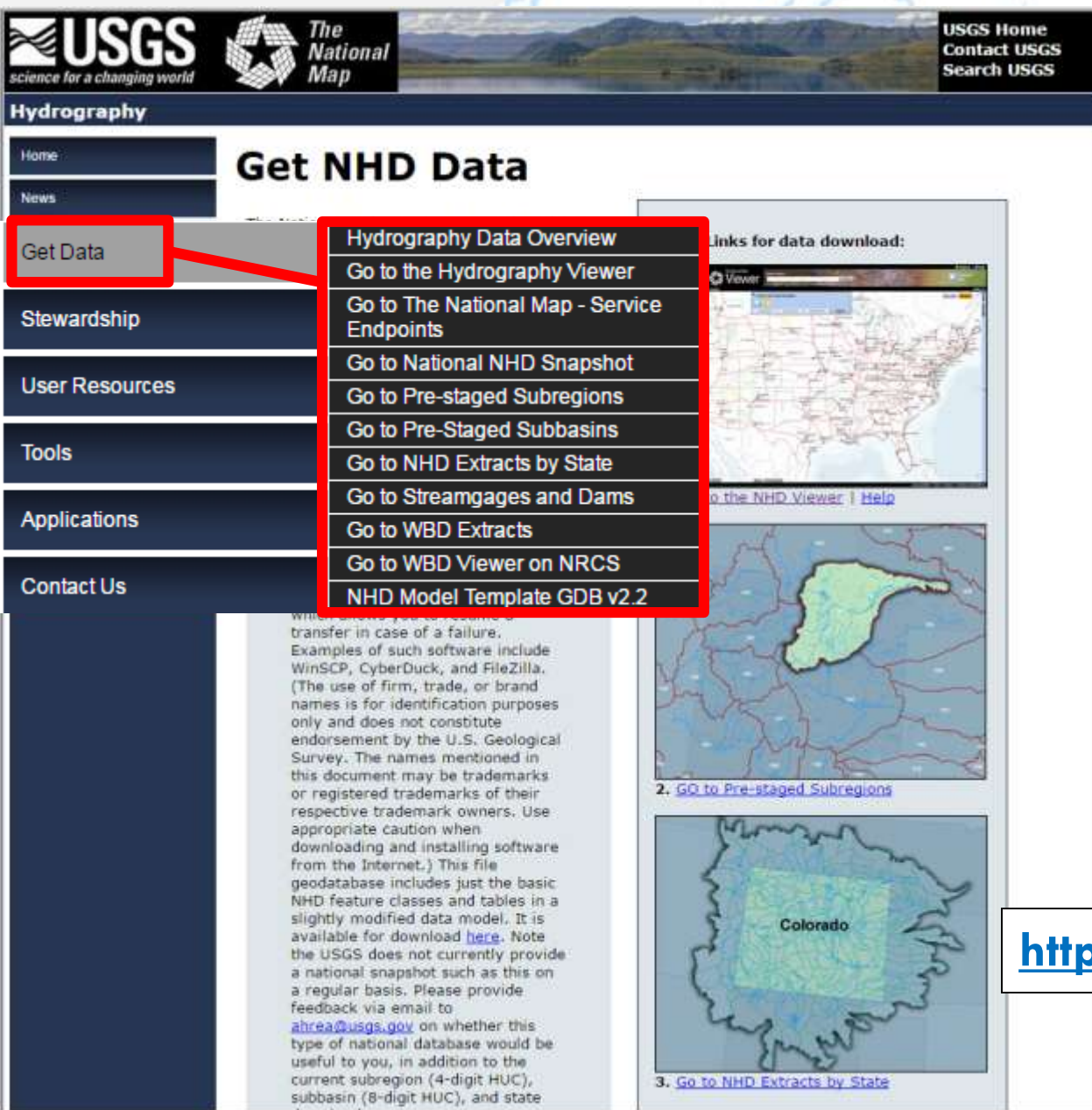


3. [Go to NHD Extracts by State](#)

NHD Website:  
**download full data model**  
(file geodatabase format) or download features as shapefiles

<http://nhd.usgs.gov/data.html>

# Getting Indiana's NHD Data from the Web



The screenshot shows the USGS Hydrography website. The top navigation bar includes the USGS logo, 'The National Map', and links for 'USGS Home', 'Contact USGS', and 'Search USGS'. The main heading is 'Get NHD Data'. A red box highlights the 'Get Data' menu, which contains the following options:

- Hydrography Data Overview
- Go to the Hydrography Viewer
- Go to The National Map - Service Endpoints
- Go to National NHD Snapshot
- Go to Pre-staged Subregions
- Go to Pre-Staged Subbasins
- Go to NHD Extracts by State
- Go to Streamgages and Dams
- Go to WBD Extracts
- Go to WBD Viewer on NRCS
- NHD Model Template GDB v2.2

Below the menu, there is a section titled 'Links for data download:' with three links: 'Go to the NHD Viewer', 'Go to Pre-staged Subregions', and 'Go to NHD Extracts by State'. The 'Go to Pre-staged Subregions' link is highlighted with a red box. Below this link is a map of the United States with a green box highlighting the state of Colorado. The 'Go to NHD Extracts by State' link is also highlighted with a red box. Below this link is a map of the state of Indiana with a green box highlighting a specific subregion.

NHD Website:  
**download full  
data model**



















- Hydrography Viewer
- Pre-staged subregions
- Pre-staged subbasins
- Extracts by State

<http://nhd.usgs.gov/data.html>



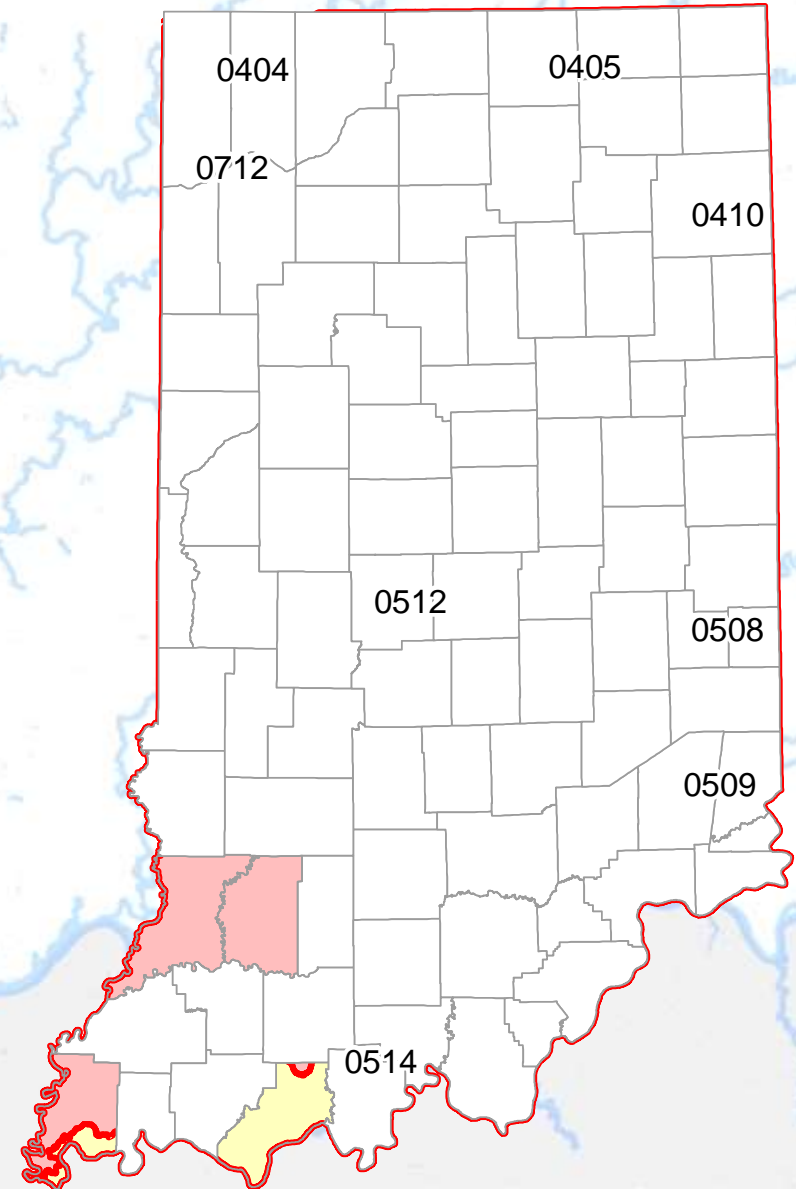
# Getting Indiana's NHD Data from the Web

Index of /vdelivery/Datasets/Staged/Hydrography/NHD/HU4/HighResolution/GDB/

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 NHD_H_0405_GDB.jpg	193 kB	5/13/16, 12:21:00 AM
 NHD_H_0405_GDB.xml	25.7 kB	5/13/16, 12:32:00 AM
 NHD_H_0405_GDB.zip	87.4 MB	5/13/16, 12:31:00 AM
 NHD_H_0406_GDB.jpg	110 kB	5/13/16, 12:23:00 AM
 NHD_H_0406_GDB.xml	26.6 kB	5/13/16, 12:28:00 AM
 NHD_H_0406_GDB.zip	61.7 MB	5/13/16, 12:27:00 AM
 NHD_H_0407_GDB.jpg	58.9 kB	5/13/16, 12:29:00 AM
 NHD_H_0407_GDB.xml	25.0 kB	5/13/16, 12:32:00 AM
 NHD_H_0407_GDB.zip	49.2 MB	5/13/16, 12:32:00 AM
 NHD_H_0408_GDB.jpg	127 kB	5/13/16, 1:38:00 AM
 NHD_H_0408_GDB.xml	25.6 kB	5/13/16, 1:44:00 AM
 NHD_H_0408_GDB.zip	69.9 MB	5/13/16, 1:44:00 AM
 NHD_H_0409_GDB.jpg	80.2 kB	5/13/16, 12:38:00 AM
 NHD_H_0409_GDB.xml	24.8 kB	5/13/16, 12:46:00 AM
 NHD_H_0409_GDB.zip	47.9 MB	5/13/16, 12:46:00 AM
 NHD_H_0410_GDB.jpg	154 kB	5/12/16, 2:03:00 AM
 NHD_H_0410_GDB.xml	26.0 kB	5/12/16, 2:12:00 AM

Click on the .zip file to download

























<http://nhd.usgs.gov/data.html>



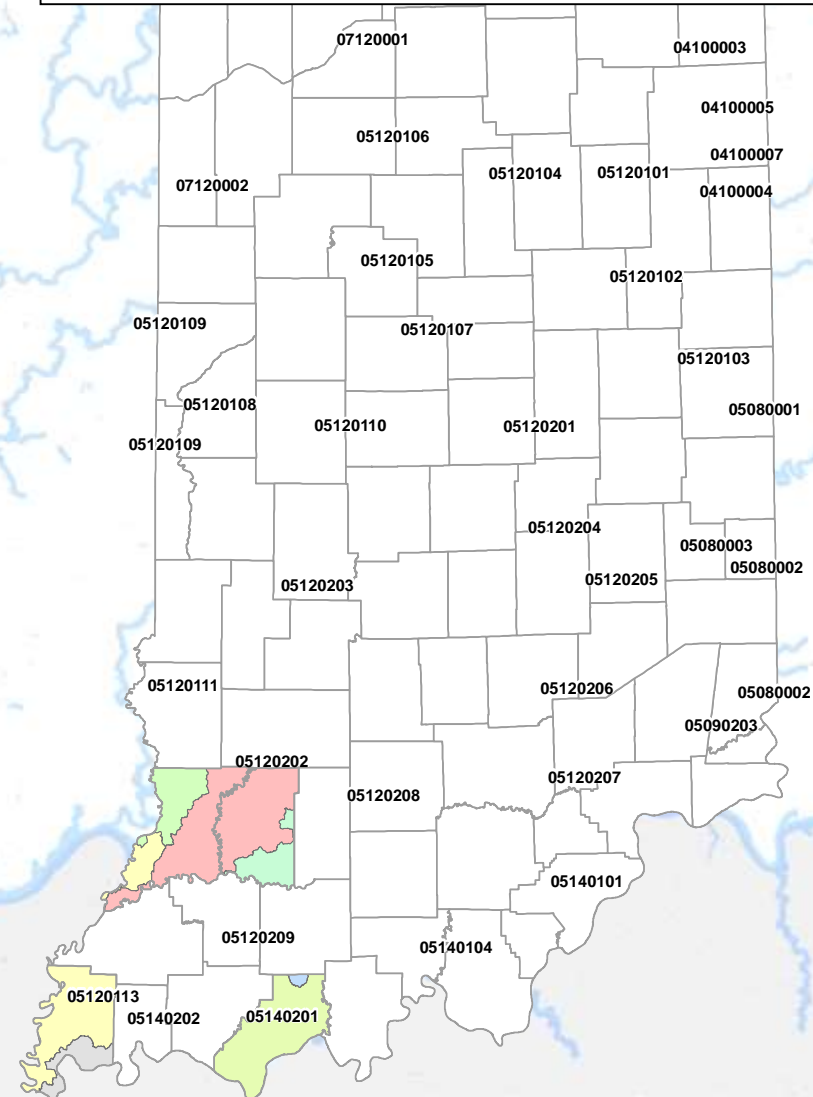
# Getting Indiana's NHD Data from the Web

Index of /vdelivery/Datasets/Staged/Hydrography/NHD/HU8/HighResolution/GDB/

## Pre-staged subbasins

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 NHD_H_05120104_GDB.zip	31.1 MB	5/5/16, 6:53:00 PM
 NHD_H_05120105_GDB.jpg	61.0 kB	5/5/16, 7:09:00 PM
 NHD_H_05120105_GDB.xml	24.5 kB	5/5/16, 7:12:00 PM
 NHD_H_05120105_GDB.zip	22.0 MB	5/5/16, 7:12:00 PM
 NHD_H_05120106_GDB.jpg	127 kB	5/5/16, 6:21:00 PM
 NHD_H_05120106_GDB.xml	24.9 kB	5/5/16, 6:22:00 PM
 NHD_H_05120106_GDB.zip	10.6 MB	5/5/16, 6:22:00 PM
 NHD_H_05120107_GDB.jpg	89.4 kB	5/5/16, 7:29:00 PM
 NHD_H_05120107_GDB.xml	24.6 kB	5/5/16, 7:33:00 PM
 NHD_H_05120107_GDB.zip	28.2 MB	5/5/16, 7:32:00 PM
 NHD_H_05120108_GDB.jpg	138 kB	5/5/16, 9:20:00 PM
 NHD_H_05120108_GDB.xml	25.0 kB	5/5/16, 9:30:00 PM
 NHD_H_05120108_GDB.zip	85.4 MB	5/5/16, 9:29:00 PM
 NHD_H_05120109_GDB.jpg	214 kB	5/4/16, 8:13:00 PM
 NHD_H_05120109_GDB.xml	24.7 kB	5/4/16, 8:14:00 PM
 NHD_H_05120109_GDB.zip	11.9 MB	5/4/16, 8:14:00 PM
 NHD_H_05120110_GDB.jpg	306 kB	5/5/16, 6:54:00 PM
 NHD_H_05120110_GDB.xml	24.6 kB	5/5/16, 6:58:00 PM
 NHD_H_05120110_GDB.zip	30.1 MB	5/5/16, 6:58:00 PM
 NHD_H_05120111_GDB.jpg	266 kB	5/5/16, 8:12:00 PM
 NHD_H_05120111_GDB.xml	24.8 kB	5/5/16, 8:19:00 PM
 NHD_H_05120111_GDB.zip	50.5 MB	5/5/16, 8:19:00 PM

<http://nhd.usgs.gov/data.html>



Click on the .zip file to download



# Getting Indiana's NHD Data from the Web

Hydrography Viewer <http://viewer.nationalmap.gov/viewer/nhd.html?p=nhd/>

Download functionality migrated to the TNM Download Client

The screenshot shows the USGS The National Map Hydrography Viewer interface. The main map displays the United States with Hydrography (NHD) data. The left sidebar lists various data layers, including Hydrography (NHD), FWS Wetlands - Topo Symbols, US Topo Availability, Geographic Names (GNIS), Structures, Transportation, Governmental Unit Boundaries, Map Indices, National Land Cover Database (NLCD), Elevation Contours - Small Scale, Imagery - Large Scale, Imagery - 1 meter, Imagery - 1 foot, and Reference Polygons. The top right corner features a search bar and a 'Data download link' button, which is highlighted with a red box. A yellow tooltip box with a red border is positioned over the button, containing the text: "Data download link. Download functionality has been migrated to the new TNM Download Client. The legacy National Map viewer will remain available for visualization and analysis tasks but will no longer support data download." The bottom of the interface shows a scale bar (0 to 600 miles) and coordinates (26° 15' 36.287" N, 67° 29' 30.941" W, USNG: 19R FK 50601 05363 (NAD 83)).

# Getting Indiana's NHD Data from the Web

TNM Download Client: <http://viewer.nationalmap.gov/basic/>

Download functionality migrated to the TNM Download Client

**USGS** **The National Map**  
Your Source for Topographic Information

**TNM Download (v1.0)** **How to Find and Download Products** **Contact Us**

**Datasets**

[Advanced Search Options](#)

**Map**

- ☐ US Topo
- ☐ Historical Topographic Maps

**Data**

- ☐ Boundaries - National Boundary Dataset
- ☐ Elevation Products (3DEP)
- ☐ Elevation Source Data (3DEP)
- ☐ Hydrography (NHD) and Watersheds (WBD)
- ☐ Imagery - 1 foot (HRO)
- ☐ Imagery - 1 meter (NAIP)
- ☐ Map Indices
- ☐ Names - Geographic Names Information System (GNIS)
- ☐ National Land Cover Database (NLCD)
- ☐ Small-scale Datasets

Users can find products in the following steps: [\(Tutorial Videos\)](#)

- A. [Find Products](#)
- B. [Review Products](#)
- C. [Use Cart](#) (Optional)

**Close**

Located Point Polygon

**Go Clear**

500 km  
300 mi

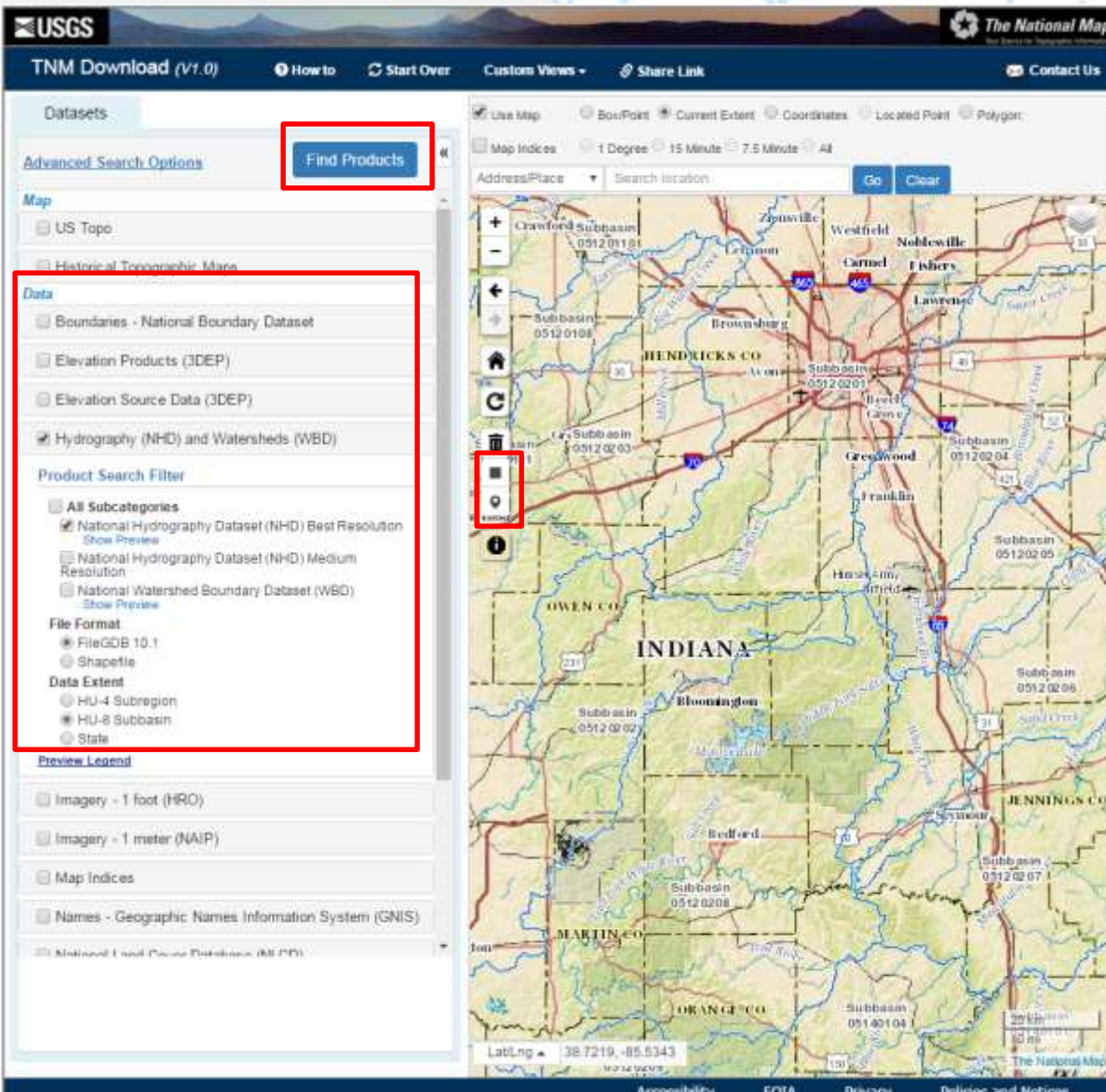
Lat/Lng

Accessibility FOIA Privacy Policies and Notices



# Getting Indiana's NHD Data from the Web

The National Map Viewer <http://viewer.nationalmap.gov/basic/>



## Under Data

- Check Hydrography
- Check National Hydrography Dataset (NHD) Best Resolution
- Select File Format
- Select Data Extent
- On map, draw rectangle or Draw Point
- Click Find Products

# Getting Indiana's NHD Data from the Web

The National Map Viewer <http://viewer.nationalmap.gov/basic/>

The screenshot shows the USGS National Map Viewer interface. The top navigation bar includes 'USGS' and 'The National Map' logos, along with links for 'TNM Download (V1.0)', 'How to', 'Start Over', 'Custom Views', 'Share Link', and 'Contact Us'. The main interface is divided into a left sidebar and a central map area.

**Left Sidebar:**

- Available Products:** A list of products is shown. The second product, 'USGS National Hydrography Dataset (NHD) Best Resolution for HU8-05120201 20160408 HU-8 Subbasin FileGDB 10.1', is highlighted with a red box. It includes details like 'Published Date: 2016-04-08', 'Metadata Updated: 2016-04-13', 'Format: FileGDB 10.1 (36.45 MB)', and 'Extent: HU-8 Subbasin'. A 'Footprint Thumbnail' and 'Download' link are also visible.
- Cart:** A 'View Cart' button is highlighted with a red box.

**Central Map Area:**

The map shows a portion of Indiana, with various subbasins labeled. A red rectangle is drawn on the map, indicating the selected data extent. The map includes a search bar, a 'Go' button, and a 'Clear' button. The map also shows a 'Map Indices' section with options for '1 Degree', '15 Minute', '7.5 Minute', and 'All'.

**Bottom Section:**

The bottom section shows the 'Export Cart Items' and 'Open Download Manager' buttons. A table lists the selected items, with a 'Download' button highlighted by a red box.

Code	Preview	Product Name	Product ID	Metadata	Download	Remove
nhd		USGS National Hydrography Dataset (NHD) Best Resolution for HU8-05120201 20160408 HU-8 Subbasin FileGDB 10.1	56091154620115c30827007	Metadata	Download	Remove

## Under Data

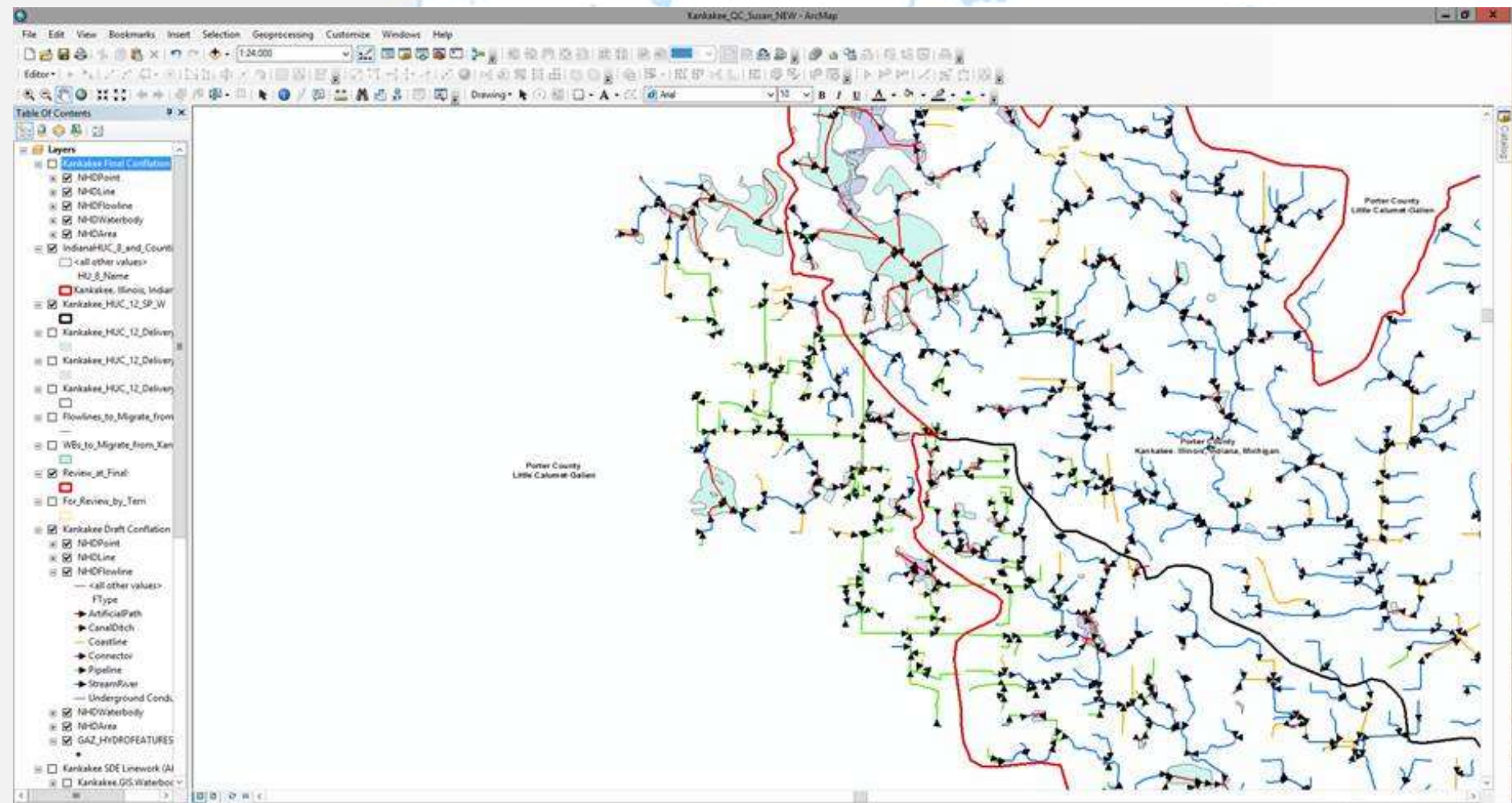
- Check Hydrography
- Check National Hydrography Dataset (NHD) Best Resolution
- Select File Format
- Select Data Extent
- On map
- Draw rectangle or Draw Point
- Click Find Products
- Select product and add to cart
- View Cart
- Click Download



# Getting Indiana's NHD Data from the Web

The National Map Viewer <http://viewer.nationalmap.gov/basic/>


**Known Issue: Features cut-off at current WBD Subbasin Boundaries**



# Getting Indiana's NHD Data from the Web

## IndianaMap Layer Gallery

<http://imaps.indiana.edu/layerGallery.html?category=WaterBodies>

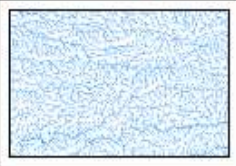
About | News

Map ViewerMap Gallery

DemographicsEnvironmentGeologyGovernmentHydrologyImageryInfrastructureReferenceMy Layers (2)

### Hydrology » Water Bodies

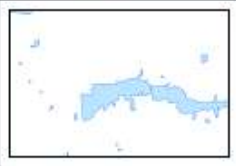
**Streams, Ditches, etc. (Local Res. NHD, 20150806)**



Streams, Rivers, Canals, Ditches, Artificial Paths, Coastlines, Connectors, and Pipelines, 20150806 (1:2,400) - Shows streams, rivers, canals, ditches, artificial paths, coastlines, connectors and pipelines in Indiana. This layer is derived from the local-resolution National

[Preview](#) [Metadata](#) [Download](#) [Map Service](#) [+ Add Layer](#)

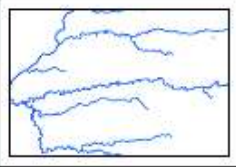
**Lakes, Ponds, etc. (Local Res. NHD, 20150806)**



Lakes, Ponds, Reservoirs, Swamps, and Marshes, 20150806 (1:2,400) - Shows lakes, ponds, reservoirs, swamps and marshes in watersheds in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as

[Preview](#) [Metadata](#) [Download](#) [Map Service](#) [+ Add Layer](#)

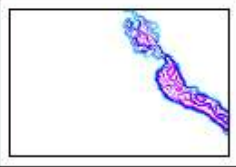
**Rivers, Canals, etc. (Local Res. NHD, 20150806)**



Rivers, Inundation Areas, Canals, Submerged Streams, and Other Linear Waterbodies, 20150806 (1:2,400) - Shows rivers, inundation areas, canals, ditches, submerged streams and other linear waterbody areas in watersheds in Indiana. This layer is derived from the

[Preview](#) [Metadata](#) [Download](#) [Map Service](#) [+ Add Layer](#)

**Lake Bathymetry, 2012 (IDNR)**



Lake Bathymetry, 2012 (IDNR) - Shows bathymetric contours for 85 lakes in Indiana, depicting the depths of the water from the shoreline of each lake as elevation of zero. Contour intervals are 5 feet for most lakes, 2 feet for some. Lakes were surveyed using Biosonics

[Preview](#) [Metadata](#) [Download](#) [Map Service](#) [+ Add Layer](#)



# Getting Indiana's NHD Data from the Web



Open Data

nhd localres

Search for nhd localres WITHIN MAP

My Activity

## IndianaMap Open Data

<http://data.indianamap.opendata.arcgis.com/>

1-3 of 3 results

Relevance ▼



**Water Bodies Lakes LocalRes** (from IndianaMap Hydrology Layers)

Shared by hillric

Lakes, Ponds, Reservoirs, Swamps, and Marshes, 20140905 (1:2,400) - Shows lakes, ponds, reservoirs, swamps and marshes in watersheds in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as of September 5, 2014. NHD data was originally developed...

15 attributes | 171325 locations |



**Water Bodies Streams LocalRes** (from IndianaMap Hydrology Layers)

Shared by hillric

Streams, Rivers, Canals, Ditches, Artificial Paths, Coastlines, Connectors, and Pipelines, 20140905 (1:2,400) - Shows streams, rivers, canals, ditches, artificial paths, coastlines, connectors and pipelines in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as of Se...

15 attributes | 2138327 locations |



**Water Bodies Rivers LocalRes** (from IndianaMap Hydrology Layers)

Shared by hillric

Rivers, Inundation Areas, Canals, Submerged Streams, and Other Linear Waterbodies, 20140905 (1:2,400) - Shows rivers, inundation areas, canals, ditches, submerged streams and other linear waterbody areas in watersheds in Indiana. This layer is

14 attributes | 2045 locations |

My Favorites

click ★ on any dataset to add to your favorites

# Getting Indiana's NHD Data from the Web

## IndianaMap Open Data

**IndianaMAP** Open Data

Search:  ☐ SEARCH WITHIN MAP [My Activity](#)

**Under Data**

1. Zoom in to AOI
2. Wait until draws in map
3. Click Download Dataset
4. Select File Format
5. Under Filtered Dataset, choose Spreadsheet, KML or Shapefile
6. Click My Activity to monitor progress
7. Result will go to browser's default download location

**Water Bodies Rivers LocalRes**

Details | Table

**DESCRIPTION**

Rivers, Inundation, and other linear waterbody areas in watersheds in Indiana. This layer is derived from the local-resolution National Hydrography Dataset (NHD), and provides currently available data as of September 5, 2014. NHD data was originally developed at 1:100,000-scale

**DATASET ATTRIBUTES**

PERMANENT\_ Text

**ABOUT**

IndianaMap Hydrology Layers

By [hilric](#)  
Updated: a year ago

IndianaMap Hydrology Layers

Source <http://maps.indiana.edu/arcgis/rest/s>  
Metadata [Water Bodies Rivers LocalRes](#)  
License No license specified



# IGIC Waters Workgroup

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